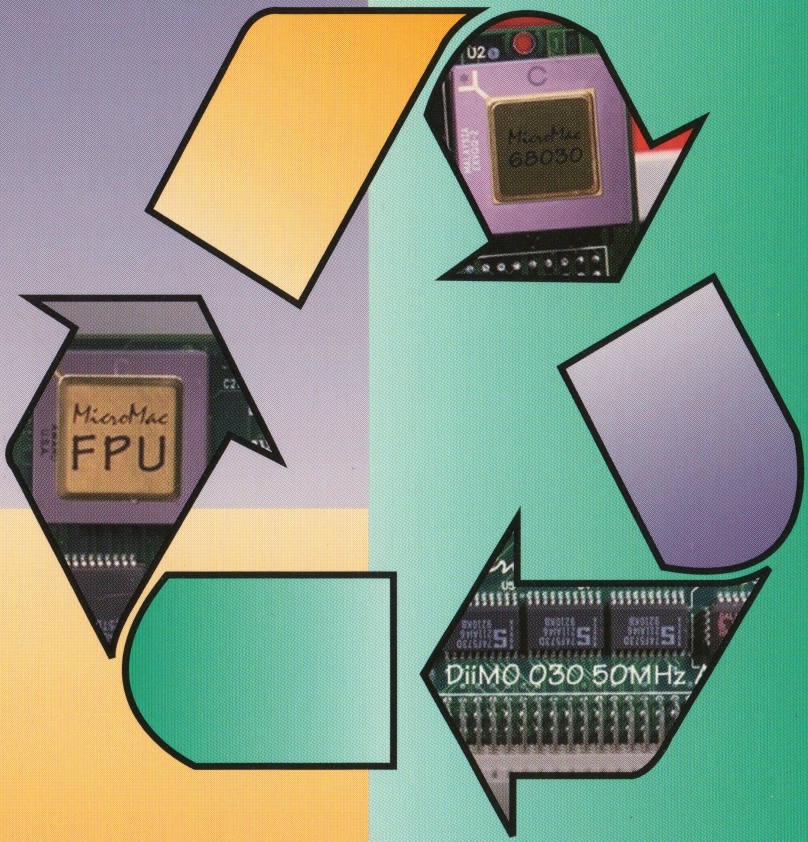
INSTALLATION MANUAL

MicroMac Technology



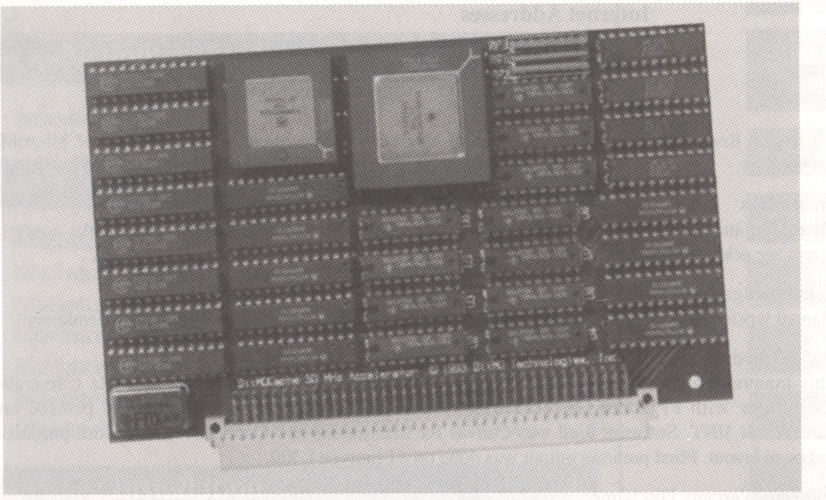
DiiMO 030

MicroMac Technology

Installation Manual

for the MicroMac DiiMO 030 Accelerator

version 1.1



The MicroMac DiiMO 030 Accelerator
for the Macintosh II, IIci (IIvx, IIvi, Performa 600), IIsi, IIcx, IIx, SE/30 & LCIII

MicroMac Technology

27121 Aliso Creek Road, Suite 125
Aliso Viejo, CA, USA 92656-3364

Telephone:	(714) 362-1000
Fax:	(714) 362-5428
Sales:	(800) 600-6227
Technical Support:	(714) 362-4953

Internet Addresses

WWW Home Page:	http://www.micromac.com/
Sales:	sales@micromac.com
Technical Support:	support@micromac.com

Copyright © 1996 MicroMac Technology, Inc.

27121 Aliso Creek Road, Suite 125
Aliso Viejo, CA, USA 92656-3364

Telephone:	(714) 362-1000
Fax:	(714) 362-5428
Sales:	(800) 600-6227
Technical Support:	(714) 362-4953

Internet Addresses

WWW Home Page:	http://www.micromac.com/
Sales:	sales@micromac.com
Technical Support:	support@micromac.com

All Rights Reserved. No part of this manual may be copied without written consent of MicroMac Technology.

Trademarks
MicroMac and DiiMO 030 are trademarks of MicroMac Technology, Inc. All trademarks appearing herein are acknowledged.

Acknowledgments
Manual written by Roman Grödl and Michael Henderson. Final production by Michael Henderson.

Manual production tools
This manual was produced with a Mac IIci accelerated with a MicroMac 80MHz Carrera040 accelerator with FPU and CarreraTurbo 128KB Cache card. Manual was proof printed on a LaserWriter IINT. Software used was Canvas for illustrations and QuarkXPress for word processing and page layout. Final prepress output was done on a Linotype L300.

Software Warranty Disclaimer
MICROMAC TECHNOLOGY'S LICENSOR(S) MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE SOFTWARE. MICROMAC TECHNOLOGY'S LICENSOR(S) DOES NOT WARRANT, GUARANTEE OR MAKE ANY REPRESENTATIONS REGARDING THE USE OR THE RESULTS OF THE USE OF THE SOFTWARE IN TERMS OF ITS CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS OR OTHERWISE. THE ENTIRE RISK AS TO THE RESULTS AND PERFORMANCE OF THE SOFTWARE IS ASSUMED BY YOU. THE EXCLUSION OF IMPLIED WARRANTIES IS NOT PERMITTED BY SOME STATES. THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

IN NO EVENT WILL MICROMAC TECHNOLOGY'S LICENSOR(S), AND THEIR DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS (COLLECTIVELY MICROMAC TECHNOLOGY'S LICENSOR) BE LIABLE TO YOU FOR ANY CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, AND THE LIKE) ARISING OUT OF THE USE OR INABILITY TO USE THE SOFTWARE EVEN IF MICROMAC TECHNOLOGY'S LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

MicroMac Technology's Licensor's liability to you for actual damages from any cause whatsoever, and regardless of the form of the action (whether in contract, tort (including negligence), product liability or otherwise), will be limited to $50.

Limitations on Warranty and Liability
MicroMac Technology offers a limited warranty for this product. In no event shall MicroMac Technology be held responsible for any damages or loss arising out of or in connection with the product in excess of the purchase price of the product.

Letter from the President vii

QuickInstall 1

QuickInstall 1-1

Introduction 2

Introduction 2-1

Hardware Installation 3

Macintosh II 3A-1
Macintosh IIci (IIvx, IIvi, Performa 600) 3B-1
Macintosh IIsi 3C-1
Macintosh IIcx 3D-1
Macintosh IIx 3E-1
Macintosh SE/30 ..... 3F-1
Macintosh LCIII 3G-1

Software Installation 4

Installing the DiiMO 030 Control Panel 4-1
DiiMO 030 Control Panel 4-3
Performance Check 4-4

Appendices

Troubleshooting Guide A

Contents Page A-1

Macintosh Procedures B

Installing a "Temporary System" B-1
Installing a "Clean System" B-6

Glossary C

Index D

MicroMac Products E

MicroMac Technology

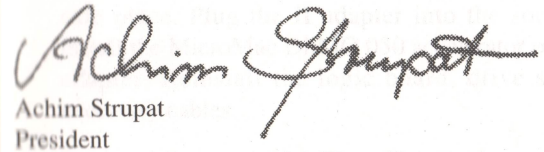
Dear Valued Customer,

Congratulations and thank you for purchasing a MicroMac DiiMO 030 accelerator. Our aim with this product, just like with the other upgrade products from MicroMac Technology, is to help you to protect and leverage the investment that you already have made in your Macintosh computer.

We have paid attention to the little details and used only quality parts throughout so you can get years of service and enjoyment with only a small investment in assembly time. We hope it will make your future Macintosh experience even more enjoyable.

In this business, if you are not constantly improving you are falling behind. We are always looking for new ideas and approaches. If you have feedback, ideas or suggestions about the MicroMac DiiMO 030 accelerator or this manual, please feel free to contact us.

Sincerely,



Achim Strupat
President

If you are familiar with Macintosh hardware, here is a summary of the installation of your MicroMac DiiMO 030 accelerator in your Macintosh:

1. **Open your Macintosh**
   Open your Macintosh by removing the case cover to gain access to the logic board.

2. **Install the MicroMac DiiMO 030 Accelerator**

   For the Macintosh II:
   Remove the drive shelf for the floppy and hard disk drives as well as all the necessary cables. Remove the logic board from the case to gain access to the logic board components. Identify the logic board model number in the upper left hand corner of the logic board, located above the six NuBus slots. If the model number is "820-0163-02" with a ©1987 then the 68020 CPU is located at "U41" and the AMU or 68851 PMMU (depending upon which one you have installed) is at location "U67". If the model number is "820-0228-A" with a ©1987/1988 then the 68020 CPU is located at "UI13" and the AMU or 68851 PMMU (depending upon which one you have installed) is at "UG13". Carefully remove the 68020 CPU and AMU (or 68851 PMMU) chips from their sockets and store them in a safe place. Plug the II adapter into the sockets and install the MicroMac DiiMO 030 accelerator onto the II adapter. Reinstall the logic board, drive shelf and necessary cables.

   For the Macintosh IIci (IIvx, IIvi, Performa 600):
   If an Apple or third party cache card or PDS card is installed in the PDS slot on the logic board, remove it and insert the MicroMac DiiMO 030 accelerator with the components of the accelerator facing the metal power supply.

   For the Macintosh IIsi:
   Insert the MicroMac DiiMO 030 accelerator into the accelerator connector (second slot from the top) on the IIsi PDS adapter with the components of the accelerator facing upwards. If you have a PDS card installed in the Macintosh IIsi's PDS slot or are planning to install a

PDS card, remove it and install it into the PDS card connector (first slot from the top) on the adapter. Install the adapter into the PDS slot on the logic board.

For the Macintosh IIcx:
Remove the logic board and identify the 68030 CPU type. The CPU location is labeled "UK10" which is above the hard disk drive SCSI cable connector. If it is a soldered CPU (a black square with a gray border and the part number MC68030RL16B or XC68030RL16B), the logic board needs to be shipped to MicroMac Technology to have a socket installed for the 68030 CPU. Please follow the instructions on the logic board service flyer that came with this manual for further details. If you have a socketed CPU (a gold square filled with a gray border and the part number MC68030RC16B) then carefully remove the CPU and store it in a safe place. Plug the IIcx adapter into the CPU socket. Reinstall the logic board into the case as well as all the necessary logic board components and cables. Install the MicroMac DiiMO 030 accelerator onto the IIcx adapter with the components of the accelerator facing the metal power supply.

For the Macintosh IIx:
Remove the drive shelf for the floppy and hard disk drives as well as all the necessary cables. Remove the logic board from the case and identify the 68030 CPU type. The CPU location is labeled "UI11" which is located left of the speaker cable connector. If it is a soldered CPU (a black square with a gray border and the part number MC68030RL16B or XC68030RL16B), the logic board needs to be shipped to MicroMac Technology to have a socket installed for the 68030 CPU. Please follow the instructions on the logic board service flyer that came with this manual for further details. If you have a socketed CPU (a gold square filled with a gray border and the part number MC68030RC16B) then carefully remove the CPU and store it in a safe place. Plug the IIx adapter into the CPU socket. Install the MicroMac DiiMO 030 accelerator onto the IIx adapter. Reinstall the logic board, drive shelf, necessary logic board components and cables.

For the Macintosh SE/30:
If you have a PDS card installed in the SE/30's PDS slot, remove it. Plug the MicroMac DiiMO 030 accelerator into the PDS slot with the components of the accelerator facing inward towards the hard disk drive. If you are installing a PDS card, install it onto the PDS card connector (top slot) on the accelerator.

For the Macintosh LCIII:
If a PDS card is installed in the PDS slot on the logic board, remove it and insert the MicroMac DiiMO 030 accelerator with the components of the accelerator facing downwards.

3. **Close your Macintosh**
Replace the case cover onto your Macintosh.

4. **Install the Software**
Boot your Macintosh and insert the DiiMO 030 Start-up disk. Locate the DiiMO 030 Control Panel on the Start-up disk and copy it into the System folder on the hard disk. With System 7 a dialog box will appear stating that control panels need to be stored in the Control Panels folder. Click on "OK" or press the Return key to place the file into the Control Panels folder. Restart your Macintosh. As the system re-boots you will see the DiiMO 030 Control Panel icon appear at the bottom of the screen along with other control panels and extensions you have installed. After the system finishes booting, open the DiiMO 030 Control Panel and verify that the "Cache On" feature is clicked on to enable the 64KB cache. If you have an FPU installed, verify that the "SANE Traps On" feature is clicked on for increased performance in math calculations. If no FPU is present the "SANE Traps On" feature will be grayed out.

5. **Enjoy**
Enjoy the increased speed of a 50MHz 68030 processor with 64KB cache and Zero-wait state technology.

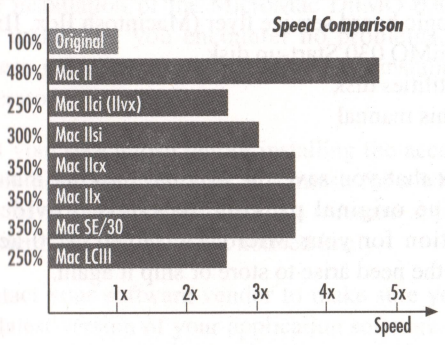
MicroMac DiiMO 030 Accelerator

Thank you for purchasing a MicroMac DiiMO 030 accelerator. Your new MicroMac accelerator upgrade allows you to:

- **Upgrade to a fast 50MHz 68030 CPU**
  The MicroMac DiiMO 030 accelerator replaces your current Macintosh 68020 or 68030 CPU with a fast 50MHz 68030 CPU.

- **Enjoy the benefits of ultra-fast 64KB cache and Zero-wait state technology**
  The combination of the 64KB cache (which serves as a very high speed storage area for frequently used data) and Zero-wait state technology (which allows the CPU to perform operations without delays) applied to the 50MHz 68030 CPU boosts the performance level of the MicroMac DiiMO 030 accelerator to that of a 20MHz to 25MHz 68040 processor (equivalent to a Quadra 605 or Centris 650).

- **Speed up your Macintosh**
  With a MicroMac DiiMO 030 accelerator your Macintosh's performance will increase up to 250-480%, depending upon the Macintosh you own.



- **Speed up math calculations**
  The DiiMO 030 Control Panel patches SANE routines for better math performance on your Macintosh. With the optional 50MHz FPU math calculations will increase up to 250-1000%, depending upon the Macintosh you own.

- **Use Virtual Memory or RAM Doubler**
  The MicroMac DiiMO 030 accelerator supports Virtual Memory and RAM Doubler.

- **Easily user-installable**
  The MicroMac DiiMO 030 accelerator features an easy installation. Simply locate the QuickInstall or hardware installation section of this manual, install your accelerator as instructed and add a simple software control panel to your System folder.

Using this Manual

This manual gives you, step-by-step, all the information you need to successfully:

- Install the MicroMac DiiMO 030 accelerator into your Macintosh.
- Install the necessary software for your MicroMac DiiMO 030 accelerator.
- Power up and use your newly increased speed.

Inventory

As you unpack your new MicroMac DiiMO 030 accelerator, please take the time to check that you have received the following items:

- MicroMac DiiMO 030 accelerator
- Adapter board (Macintosh II, IIsi, IIcx, IIx only)
- Logic board service flyer (Macintosh IIcx, IIx only)
- DiiMO 030 Start-up disk
- Utilities disk
- This manual

Before you Begin

We ask that you save the original packing materials and box. The original packing materials provide the best protection for your MicroMac DiiMO 030 accelerator should the need arise to store or ship it again.

MicroMac DiiMO 030 Accelerator

Installing the MicroMac DiiMO 030 accelerator into your Macintosh can be accomplished by following the steps in the proceeding chapters. As you go through this manual, please read each paragraph in its entirety before actually completing the instructions. You only need to read the sections which relate to your specific Macintosh. The area and tools you will need to install the MicroMac DiiMO 030 accelerator are:

- A flat, non-conductive static-free work area
- An anti-static grounding strap (available at most computer stores)
- A philips screwdriver
- A medium flat-blade screwdriver
- A Torx screwdriver and case spreader (for the Macintosh SE/30 only)

Skills Needed

It is assumed that you are familiar with the internal layout and assembly of your Macintosh. We recommend that you familiarize yourself with this manual and understand the steps necessary to install the MicroMac DiiMO 030 accelerator. As long as you understand the basic concepts required, the installation will be easy from start to finish.

Before you Install

There are some steps that you can perform before you begin the installation of the MicroMac DiiMO 030 accelerator to make sure you encounter no problems. Please follow these guidelines for a quick and easy installation of the accelerator:

- Test your Macintosh before installing the accelerator. If you have not used your Macintosh for a while you may have a booting problem or a software application problem that you have not noticed lately.
- Contact your software vendor to make sure you have the latest version of your application software. This is especially important if you are using System 7 or greater.
- Make certain you are using the latest System software that is compatible with your software applications.

- Do not make too many upgrades at the same time. When you make too many upgrades at once, it makes it difficult to identify exactly what the source of the problem is if you should happen to encounter one.

System Software Requirements

System software requirements:

- System 6.0.7 or greater

Use Tune-up 1.1.1 on your System 7 software with a DiiMO 030 accelerator.

If you are using System 7.5, we recommend that you update to System 7.5.1 by installing System 7.5 Update 1.0.

Tune-up 1.1.1 and System 7.5 Update 1.0 are available by Apple over the Internet or through online services such as America Online.

Macintosh II Installation

Installation for the Macintosh II involves removing the logic board, locating and removing the 68020 CPU and AMU (or 68851 PMMU) chips, plugging the II adapter into the CPU and AMU (68851 PMMU) sockets, installing the MicroMac DiiMO 030 accelerator into the II adapter and reinstalling the logic board in the case.

Please follow steps 1-14 to remove the Macintosh II logic board and locate the necessary components for the installation of the MicroMac DiiMO 030 accelerator.

Logic Board Removal

1. Shut down the computer and remove the monitor from the top of the case. If the computer has been on, please wait at least five minutes until it cools before you begin the installation.

2. During installation you will need to move the main unit of the computer. You may want to disconnect the peripheral cables from the back of the computer, including the mouse and keyboard.

3. Locate the security screw (Figure 3A-1) and use a philips screwdriver to remove it from the back of the computer case cover.

4. Press and release the two lid latches (Figure 3A-1) and lift the case cover off. If you have a anti-static grounding strap, put it on at this time. (See grounding strap package for detailed instructions.)

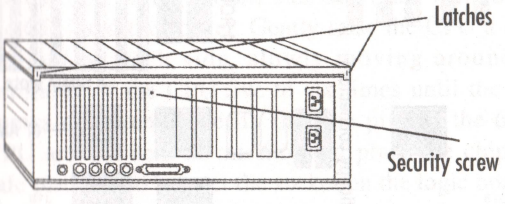


Figure 3A-1:
Location of security screw and latches

5. Remove the four screws attaching the drive shelf to the computer case. Disconnect the floppy disk drive, hard disk drive and power cables and gently lift the drive shelf out from the case (Figure 3A-2).

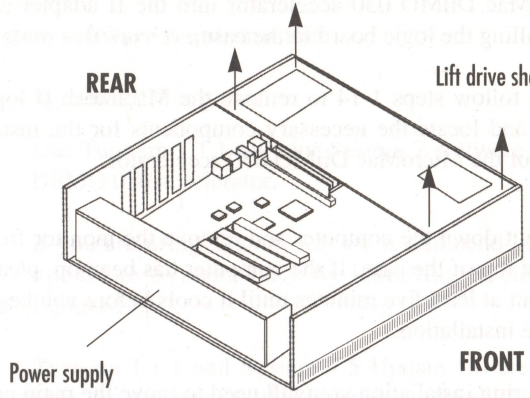


Figure 3A-2:
Location of drive shelf

6. Once you have removed the drive shelf, locate the logic board and refer to Figure 3A-3 as you proceed to remove the logic board from the case.

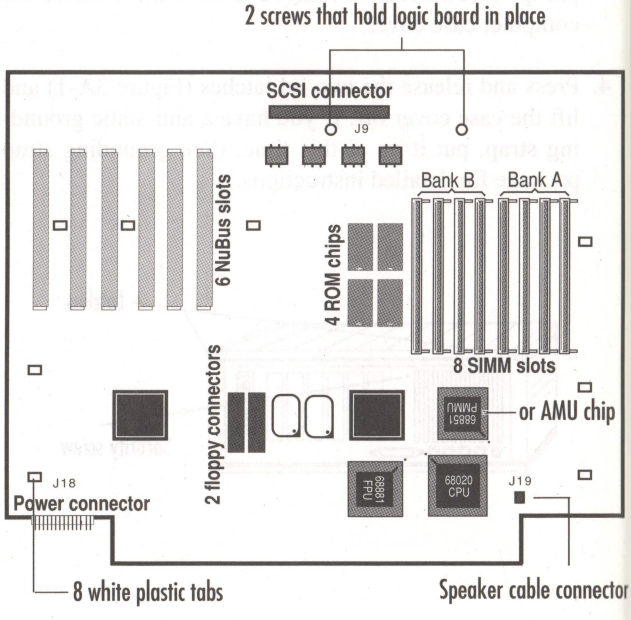


Figure 3A-3:
Macintosh II logic board

7. Remove any video or NuBus cards that are installed in the NuBus slots.

8. Remove the Reset/Programmer's switch if you have one installed, located on the outside of the computer case on the right hand side.

9. Remove the speaker cable connector from the logic board located at J-19.

10. Remove the power supply connector from the logic board at J-18.

11. Remove the two screws that hold the logic board in place located by the hard disk drive ribbon connector (SCSI connector) at J-9.

12. Locate the eight white plastic clips that lock the logic board in place. The clips are released by pressing the exposed portion towards the front of the case. Release the clips and lift the board, starting with the clip closest to the front center of the case, then the left front, then the right. Keep working from left to right to release all the clips. Slide the logic board to the front of the case and remove.

13. Place the logic board on a firm static-free surface. To remove the 68020 CPU you will need to use a medium flat-blade screwdriver. Refer to Figure 3A-3 for the location of the 68020 CPU. Carefully using the medium flat-blade screwdriver, gently pry the 68020 CPU from its socket by applying a small amount of pressure on each side of the CPU. Do not try to remove the CPU by prying on one side only, this will damage the CPU and the socket. Gently raise the CPU a small amount on each side, slowly moving around the perimeter of the CPU five to six times until the CPU comes out evenly. Verify that the pins of the 68020 CPU are not bent or missing and place the chip in a safe place. Also inspect the socket on the logic board to make sure it is not damaged. The II adapter board plugs into this socket.

Locating and Removing the 68020 CPU

Note: MicroMac will not assume any liability for damage to the 68020 CPU, the socket or the logic board so please be careful!

Locating and Removing the AMU or 68851 PMMU Chip

14. In order for the II adapter to install correctly the original AMU (or 68851 PMMU) chip must be removed. Refer to Figure 3A-3 for location. Carefully using a medium flat-blade screwdriver, gently pry the chip from its socket by applying a small amount of pressure on each side of the chip. Do not try to remove it by prying on one side only, this will damage the chip and the socket. Gently raise the chip a small amount on each side, slowly moving around the perimeter of the chip five to six times until it comes out evenly. Verify that the pins are not bent or missing and place the chip in a safe place. Also inspect the socket on the logic board to make sure it is not damaged. The adapter board plugs into this socket.

Note: MicroMac will not assume any liability for damage to the AMU chip or 68851 PMMU, the socket or the logic board so please be careful!

15. Remove the II adapter from its anti-static shipping bag.

II Adapter Installation

16. Carefully orientate and insert the II adapter into the CPU and AMU (68851 PMMU) sockets. Refer to Figure 3A-4 for correct orientation. The pin alignment must be checked carefully so no pins are damaged as the II adapter is pressed down into the sockets. Also make sure all the pins mate with a corresponding hole in the sockets. The II adapter should be flush with the logic board. **Do not** use major force or wiggle the II adapter from side to side. If the II adapter does not go in easily, gently pull it out and realign it again with the respective sockets on the logic board.

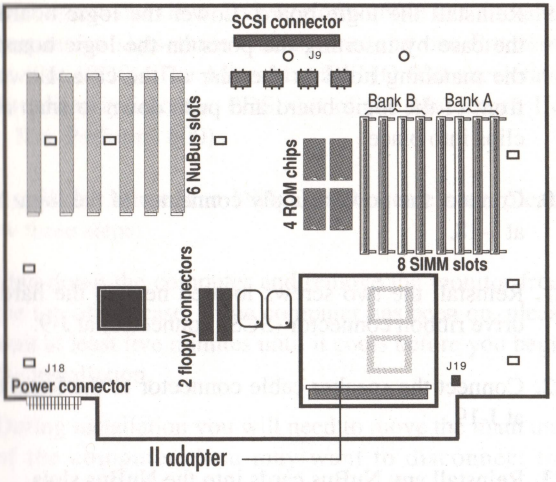


Figure 3A-4:
Orientation of the II adapter on the logic board

17. Remove the MicroMac DiiMO 030 accelerator from its anti-static shipping bag.

18. Plug the MicroMac DiiMO 030 accelerator into the II adapter by mating the MicroMac DiiMO 030 accelerator with the connector on the II adapter. Refer to Figure 3A-5 for correct orientation. Press them together to make certain there is a tight fit. **Do not** use excessive force or wiggle the accelerator from side to side. If the accelerator does not go in easily, pull it out and realign it with the connector on the II adapter.

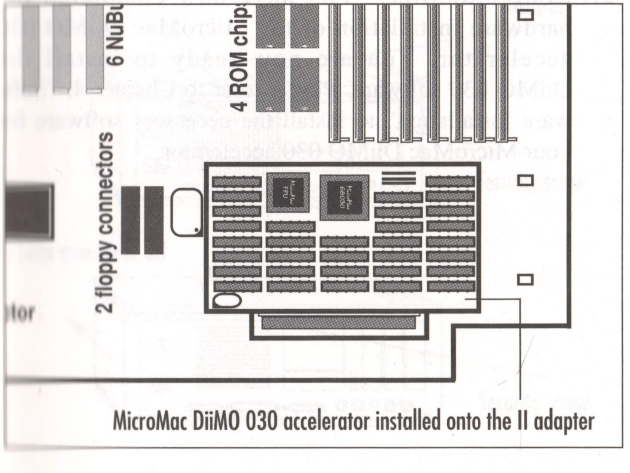


Figure 3A-5:
Orientation of the MicroMac DiiMO 030 accelerator on the II adapter

MicroMac DiiMO 030 Accelerator Installation

Reinstalling the Logic Board

19. Reinstall the logic board. Lower the logic board into the case by inserting the ports on the logic board into the matching holes at the rear of the case. Lower the front of the logic board and push down to snap all the clips into place.

20. Connect the power supply connector to the logic board at J-18.

21. Reinstall the two screws located next to the hard disk drive ribbon connector (SCSI connector) at J-9.

22. Connect the speaker cable connector to the logic board at J-19.

23. Reinstall any NuBus cards into the NuBus slots.

24. Reinstall the Reset/Programmer's switch.

25. Install the drive shelf and reconnect the hard and floppy disk drives.

26. Replace the case cover onto the computer. Press the cover down until the latches snap into place. Replace and tighten the security screw. Place the monitor back on top of the computer and reconnect any peripheral cables you may have disconnected.

27. Congratulations! You have now completed the hardware installation of the MicroMac DiiMO 030 accelerator. You are now ready to install the DiiMO 030 software. Please refer to Chapter 4, "Software Installation" to install the necessary software for your MicroMac DiiMO 030 accelerator.

Macintosh IIci (IIvx, IIvi, Performa 600) Installation

Hardware Installation

IIci (IIvx)

The Macintosh IIci (IIvx, IIvi, Performa 600) has a total of four expansion slots–three NuBus slots and one Processor Direct Slot (PDS). The MicroMac DiiMO 030 accelerator mounts directly into the PDS slot of the Macintosh IIci (IIvx, IIvi, Performa 600).

To install the MicroMac DiiMO 030 accelerator, please follow these steps:

1. Shut down the computer and remove the monitor from the top of the case. If the computer has been on, please wait at least five minutes until it cools before you begin the installation.

2. During installation you will need to move the main unit of the computer. You may want to disconnect the peripheral cables from the back of the computer, including the mouse and keyboard.

3. Locate the security screw (Figure 3B-1) and use a philips screwdriver to remove it from the back of the computer case cover.

4. If you have a Macintosh IIci, press and release the two lid latches (Figure 3B-1) and lift the case cover off. For the Macintosh IIvx, IIvi or Performa 600 simply slide the case cover off the computer as shown in Figure 3B-2. If you have a anti-static grounding strap, put it on at this time. (See grounding strap package for detailed instructions.)

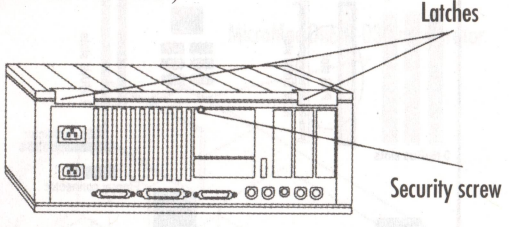


Figure 3B-1: *Location of security screw and latches on Macintosh IIci*

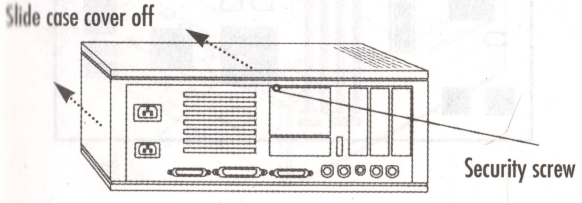


Figure 3B-2: *Location of security screw on Macintosh IIvx, IIvi, Performa 600*

5. Locate the PDS slot on the logic board of the Mac intosh IIci (Figure 3B-3) or the Macintosh IIvx, IIvi Performa 600 (Figure 3B-4).

6. On the Macintosh IIci it is a 120-pin socket locate next to the ROM SIMM slot. If an Apple or third part cache card is installed, remove it.

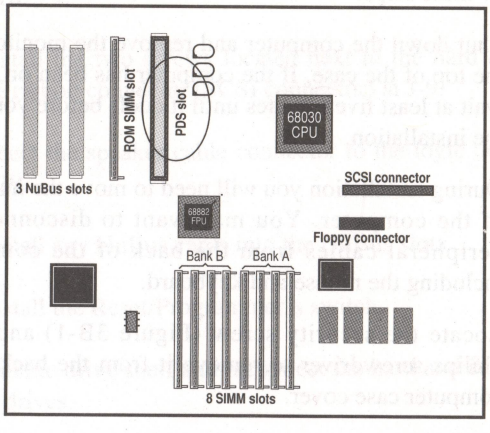


Figure 3B-3: *Location of PDS slot on the Macintosh IIci*

7. On the Macintosh IIvx, IIvi, Performa 600 it is 120-pin socket located next to the three NuBus slots If a third party PDS card is installed, remove it.

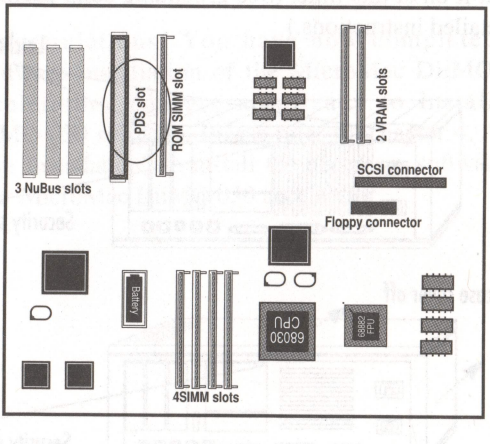


Figure 3B-4: *Location of PDS slot on the Macintosh IIvx, IIvi, Performa 600*

8. Remove the MicroMac DiiMO 030 accelerator from its anti-static shipping bag.

9. Carefully insert the MicroMac DiiMO 030 accelerator into the PDS slot. Align the MicroMac DiiMO 030 accelerator directly over the slot. The components on the accelerator should be facing the metal power supply case. Push down firmly on the top edge of the accelerator until it is completely seated. **Do not** use major force or wiggle the accelerator from side to side. If the MicroMac DiiMO 030 accelerator does not go in easily, pull it out and realign it again with the PDS slot.

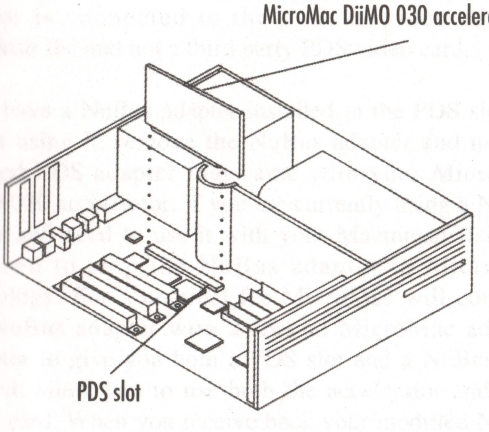


Figure 3B-5: Installing the MicroMac DiiMO 030 accelerator into the Macintosh IIci

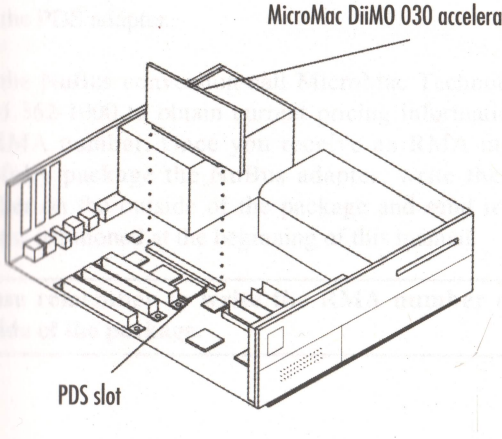


Figure 3B-6: Installing the MicroMac DiiMO 030 accelerator into the Macintosh IIvx, IIvi, Performa 600

10. Replace the case cover onto the computer. On th Macintosh IIci press the cover down until the latche snap into place. On the Macintosh IIvx, IIvi, Perform 600 simply slide the cover onto the computer. Replac and tighten the security screw. Place the monitor bac on top of the computer and reconnect any peripher cables you may have disconnected.

11. Congratulations! You have now completed th hardware installation of the MicroMac DiiMO 03 accelerator. You are now ready to install th DiiMO 030 software. Please refer to Chapter 4, "Soft ware Installation" to install the necessary software fo your MicroMac DiiMO 030 accelerator.

MicroMac DiiMO 030 Accelerator

Macintosh IIsi Installation

The Macintosh IIsi has one Processor Direct Slot (PDS). To install an expansion card (accelerator, video or Ethernet) in your computer you need either a NuBus adapter or a PDS adapter. The MicroMac DiiMO 030 is shipped with a PDS adapter.

If You Have a PDS Adapter

Hardware Installation

IIsi

The MicroMac IIsi PDS adapter allows you to install two cards in your computer–a MicroMac DiiMO 030 accelerator and a third party PDS card. If you currently have a PDS card installed in your computer you should be able to plug it into the IIsi PDS adapter along with the MicroMac DiiMO 030 accelerator. If possible, we recommend that you first install the accelerator and test it before installing your PDS card; however, you can only do this if your monitor is connected to the built-in video of your Macintosh IIsi and not a third party PDS video card.

If You Have a NuBus Adapter

If you have a NuBus adapter installed in the PDS slot but are not using it, remove the NuBus adapter and use the supplied PDS adapter that came with your MicroMac DiiMO 030 accelerator. If you are currently using a NuBus adapter and need to use it with your Macintosh IIsi, you will need to ship the NuBus adapter to MicroMac Technology. For a nominal fee MicroMac will combine your NuBus adapter with a special MicroMac adapter connector to give you both a PDS slot and a NuBus slot. This will allow you to use both the accelerator and your NuBus card. When you receive back your modified NuBus adapter, please follow the installation instructions as if it was the PDS adapter.

For the NuBus conversion call MicroMac Technology at (714) 362-1000 to obtain current pricing information and an RMA number. Once you receive an RMA number, carefully package the NuBus adapter, write the RMA number on the outside of the package and send it to the address mentioned at the beginning of this manual.

Please remember to write the RMA number on the outside of the package.

To install the MicroMac DiiMO 030 accelerator, pleas follow these steps:

1. Shut down the computer and remove the monitor fro the top of the case. If the computer has been on, pleas wait at least five minutes until it cools before you begi the installation.

2. During installation you will need to move the main uni of the computer. You may want to disconnect th peripheral cables from the back of the computer including the mouse and keyboard.

3. Locate the security screw (Figure 3C-1) and use philips screwdriver to remove it from the back of th computer case cover.

4. Press and release the two lid latches (Figure 3C-1) an lift the case cover off. If you have a anti-static ground ing strap, put it on at this time. (See grounding stra package for detailed instructions.)

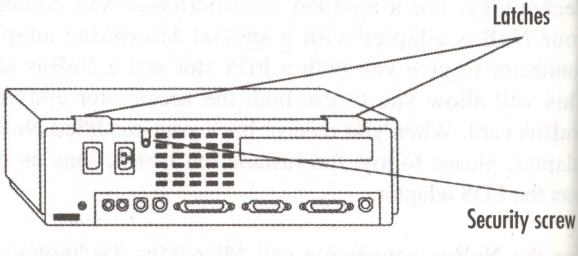


Figure 3C-1: *Location of security screw and latches*

5. Locate the PDS slot on the logic board (Figure 3C-2) It is a 120-pin slot located near the ROM SIMM slot.

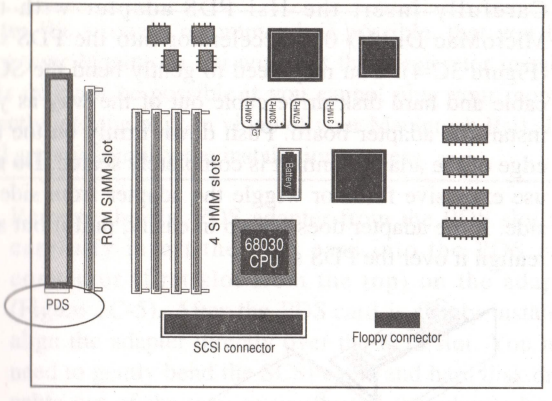


Figure 3C-2:
Location of PDS slot

Hardware Installation

IIsi

6. Remove the IIsi PDS adapter and the MicroMac DiiMO 030 accelerator from their anti-static shipping bags.

7. Carefully insert the MicroMac DiiMO 030 accelerator into the accelerator connector (second slot from the top) on the IIsi PDS adapter (Figure 3C-3) with the components of the accelerator facing upwards. Push down firmly on the top edge of the card until the accelerator is completely seated. **Do not** use excessive force or wiggle the accelerator from side to side. If the accelerator does not go in easily, pull it out and realign it over the connector.

MicroMac DiiMO 030 Accelerator Installation

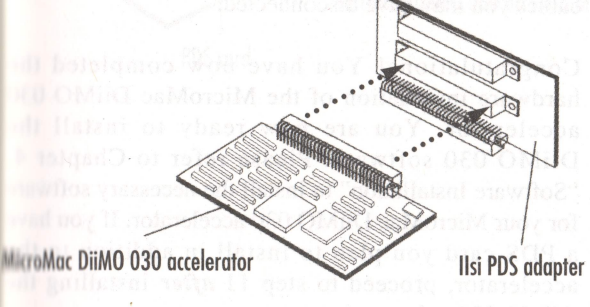


Figure 3C-3:
Installing the MicroMac DiiMO 030 accelerator into the IIsi PDS adapter

IIsi PDS Adapter Installation

8. Carefully insert the IIsi PDS adapter with the MicroMac DiiMO 030 accelerator into the PDS slot (Figure 3C-4). You may need to gently bend the SCSI cable and hard disk drive cable out of the way as you install the adapter board. Push down firmly on the top edge of the adapter until it is completely seated. **Do not** use excessive force or wiggle the adapter from side to side. If the adapter does not go in easily, pull it out and realign it over the PDS slot.

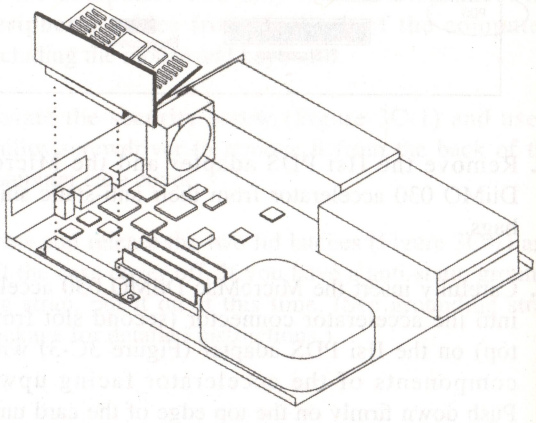


Figure 3C-4: Installing the IIsi PDS adapter with the MicroMac DiiMO 030 accelerator into the PDS slot

9. Replace the case cover onto the computer. Press the cover down until the latches snap into place. Replace and tighten the security screw. Place the monitor back on top of the computer and reconnect any peripheral cables you may have disconnected.

10. Congratulations! You have now completed the hardware installation of the MicroMac DiiMO 030 accelerator. You are now ready to install the DiiMO 030 software. Please refer to Chapter 4 "Software Installation" to install the necessary software for your MicroMac DiiMO 030 accelerator. If you have a PDS card you plan to install in addition to the accelerator, proceed to step 11 ***after*** installing the DiiMO 030 software.

Note: We strongly recommend, if possible, that you first boot your Macintosh IIsi with just the accelerator installed (this may not be possible if you cannot plug your monitor directly into the built-in video of your Macintosh IIsi). This will greatly simplify the installation process.

11. Remove the IIsi PDS adapter from the PDS slot and carefully insert the PDS card into the PDS card connector (first slot from the top) on the adapter (Figure 3C-5). After the PDS card is firmly installed, align the adapter directly over the PDS slot. You may need to gently bend the SCSI cable and hard disk drive cable out of the way as you install the adapter board. Push down firmly on the top edge of the adapter until it is completely seated in the PDS slot. **Do not** use excessive force or wiggle the adapter from side to side. If the adapter does not go in easily, pull it out and realign it over the PDS slot.

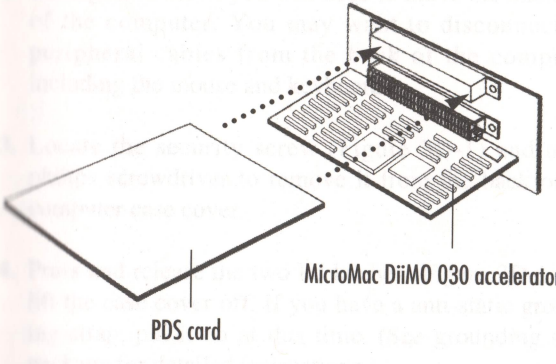


Figure 3C-5: Installing a PDS card into the IIsi PDS adapter

Macintosh IIcx Installation

Logic Board Removal

Installation for the Macintosh IIcx involves removing the logic board, identifying the 68030 CPU type, removing the 68030 CPU from its socket, plugging the IIcx adapter into the 68030 CPU socket, reinstalling the logic board into the case and installing the MicroMac DiiMO 030 accelerator onto the IIcx adapter. If the 68030 CPU is soldered, the logic board needs to be shipped to MicroMac Technology. For a nominal fee MicroMac Technology will install a socket for the 68030 CPU.

Please follow steps 1-16 to remove the Macintosh IIcx logic board and locate the necessary components for the installation of the MicroMac DiiMO 030 accelerator.

1. Shut down the computer and remove the monitor from the top of the case. If the computer has been on, please wait at least five minutes until it cools before you begin the installation.

2. During installation you will need to move the main unit of the computer. You may want to disconnect the peripheral cables from the back of the computer, including the mouse and keyboard.

3. Locate the security screw (Figure 3D-1) and use a philips screwdriver to remove it from the back of the computer case cover.

4. Press and release the two lid latches (Figure 3D-1) and lift the case cover off. If you have a anti-static grounding strap, put it on at this time. (See grounding strap package for detailed instructions.)

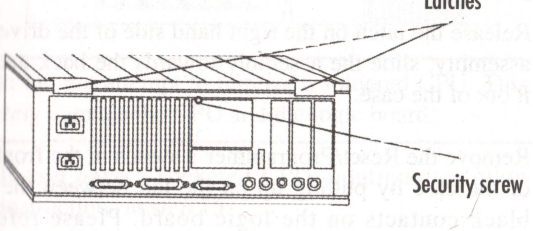


Figure 3D-1: Location of security screw and latches

5. Locate the power supply; it is a large, silver box. The bottom of the power supply plugs directly into the logic board. Also locate the plastic latch that locks the power supply into place and use a medium flat-blade screwdriver to release it. Place one hand on the plastic latch and pull the plastic latch away from the power supply case while you simultaneously lift up on the bottom of the power supply. The power supply will unplug and pull out from the logic board. Please refer to Figure 3D-2.

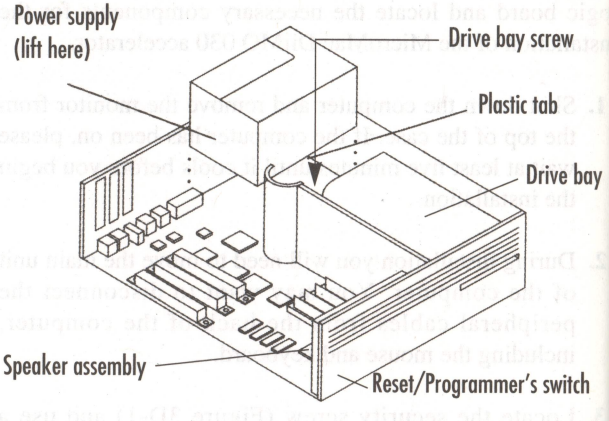


Figure 3D-2: Components on the Macintosh IIcx logic board

6. Remove the screw holding the drive bay to the logic board located at the rear of the drive bay assembly. Please refer to Figure 3D-2.

7. Reach down by the drive bay screw, hold and disconnect the three cables from the logic board. These cables are the floppy disk drive, hard disk drive and power cables.

8. Release the latch on the right hand side of the drive bay assembly, slide the assembly towards the back and lift it out of the case.

9. Remove the Reset/Programmer's switch at the front left of the case by pulling up on the tab between the two black contacts on the logic board. Please refer to Figure 3D-2.

10. Remove the speaker assembly at the center front of the case by releasing the latch just above the SIMM slots and lifting the assembly back and out of the case. Please refer to Figure 3D-2.

11. Slide the logic board to the front of the case and handling it by the edges only, lift the board out of the case.

Locating and Identifying CPU Type

12. Place the logic board on a firm static-free surface. Locate the 68030 CPU on the logic board (Figure 3D-3). The CPU location is labeled "UK10", which is above the hard disk drive SCSI cable connector. A socketed CPU is a gold square filled with a gray border. The gold square contains part number MC68030RC16B. The socketed CPU connects to a socket which attaches directly to the logic board. A soldered CPU consists of a black square with a gray border. The black square contains part number MC68030RL16B or XC68030RL16B.

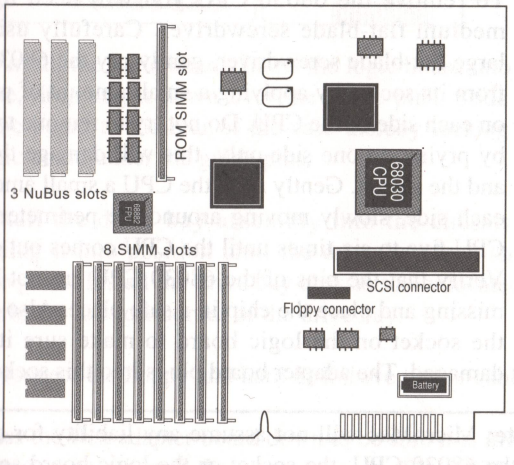


Figure 3D-3: Macintosh IIcx logic board

Note: Do not attempt to remove a soldered CPU. This will severely damage the CPU and the logic board.

13. If you have a socketed CPU, continue to follow the instructions at step 15.

If You Have a Socketed CPU

If You Have a Soldered CPU

14. If you have a soldered CPU, remove the floppy an hard disk drive cables as well as the SIMMs and an NuBus cards from the logic board. You will need t ship your logic board to MicroMac Technology to b serviced. For a nominal fee MicroMac will:

- Test the logic board
- Unsolder the 68030 CPU
- Install a 68030 CPU
- Test the socket installation with the adapter and accelerator installed
- Send the tested unit back to you via 2-day shipping

To have your logic board serviced, completely fill ou the logic board service flyer that came with this manual Carefully package your logic board, adapter and accelerator along with the service flyer and a check made out for the appropriate service fee and ship it to the address mentioned at the bottom of the flyer.

Removing the 68030 CPU

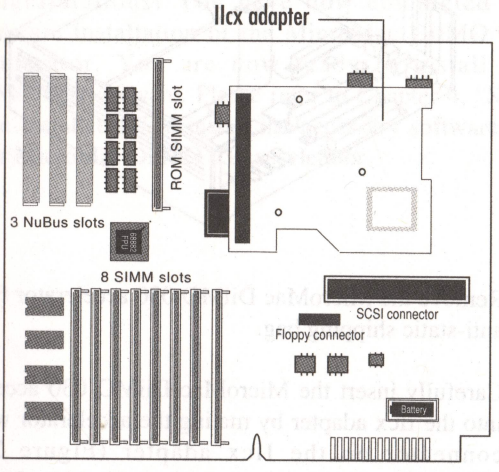
15. To remove the 68030 CPU you will need to use a medium flat-blade screwdriver. Carefully using the large flat-blade screwdriver, gently pry the 68030 CPU from its socket by applying a small amount of pressure on each side of the CPU. Do not try to remove the CPU by prying on one side only, this will damage the CPU and the socket. Gently raise the CPU a small amount on each side, slowly moving around the perimeter of the CPU five to six times until the CPU comes out evenly. Verify that the pins of the 68030 CPU are not bent or missing and place the chip in a safe place. Also inspect the socket on the logic board to make sure it is not damaged. The adapter board plugs into this socket.

Note: MicroMac will not assume any liability for damage to the 68030 CPU, the socket or the logic board so please be careful!

---

16. Remove the IIcx adapter from its anti-static shipping bag.

17. Plug the IIcx adapter into the CPU socket on the logic board. Refer to Figure 3D-4 for correct orientation. Press them together to make certain there is a tight fit. **Do not** use excessive force or wiggle the adapter from side to side. If the adapter does not go in easily, pull it out and realign it with the CPU socket.



18. Reinstall the logic board. Insert the logic board into the case, dropping it down over the guide pins. Slide the logic board to the rear of the case thereby locking the logic board under the guide pins.

19. Install the drive bay assembly into the chassis by sliding it into position until the drive bay lock snaps into place. Install the drive bay chassis screw located in the lower left rear corner of the drive bay.

20. Reconnect the floppy and hard disk drive power cables.

21. Press the IIcx adapter board down to be sure it is firmly seated, then reinstall the power supply (Figure 3D-5). Align the tabs on the power supply with the grooves on the Macintosh IIcx case. Gently slide the power supply into the case until you hear the power supply snap into place.

22. Reinstall the speaker assembly at the center front of the case (Figure 3D-2) and lock it into place.

IIcx Adapter Installation

Figure 3D-4: Orientation of the IIcx adapter on the logic board

Reinstalling the Logic Board

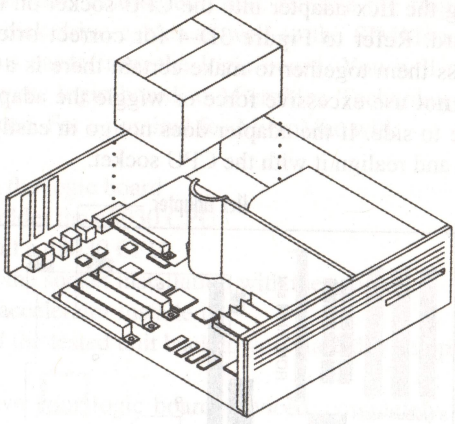


Figure 3D-5:
Reinstalling the power supply

23. Remove the MicroMac DiiMO 030 accelerator from it anti-static shipping bag.

MicroMac DiiMO 030 Accelerator Installation

24. Carefully insert the MicroMac DiiMO 030 accelerato into the IIcx adapter by mating the accelerator with th connector on the IIcx adapter (Figure 3D-6). The components on the accelerator should be facing th metal power supply case. Push down firmly on the to edge of the accelerator until the accelerator i completely seated. **Do not** use excessive force o wiggle the accelerator from side to side. If th accelerator does not go in easily, pull it out and realig it with the connector on the IIcx adapter.

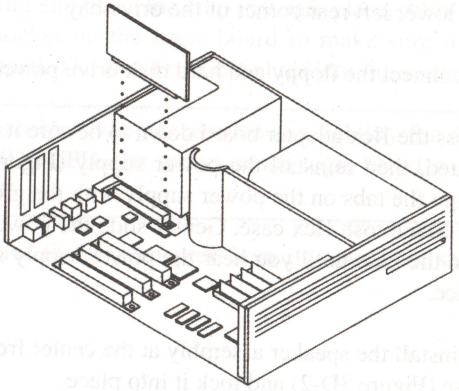


Figure 3D-6:
Installing the MicroMac DiiMO 030 accelerator

25. Replace the case cover onto the computer. Press the cover down until the latches snap into place. Replace and tighten the security screw. Place the monitor back on top of the computer and reconnect any peripheral cables you may have disconnected.

26. Congratulations! You have now completed the hardware installation of the MicroMac DiiMO 030 accelerator. You are now ready to install the DiiMO 030 software. Please refer to Chapter 4, "Software Installation" to install the necessary software for your MicroMac DiiMO 030 accelerator.

Macintosh IIx Installation

Installation for the Macintosh IIx involves removing the logic board, identifying the 68030 CPU type, removing the 68030 CPU from its socket, plugging the IIx adapter into the CPU socket, installing the MicroMac DiiMO 030 accelerator onto the IIx adapter and reinstalling the logic board into the case. If the 68030 CPU is soldered, the logic board needs to be shipped to MicroMac Technology. For a nominal fee MicroMac Technology will install a socket for the 68030 CPU.

Logic Board Removal

Please follow steps 1-15 to remove the Macintosh IIx logic board and locate the necessary components for the installation of the MicroMac DiiMO 030 accelerator.

1. Shut down the computer and remove the monitor from the top of the case. If the computer has been on, please wait at least five minutes until it cools before you begin the installation.

2. During installation you will need to move the main unit of the computer. You may want to disconnect the peripheral cables from the back of the computer, including the mouse and keyboard.

3. Locate the security screw (Figure 3E-1) and use a philips screwdriver to remove it from the back of the computer case cover.

4. Press and release the two lid latches (Figure 3E-1) and lift the case cover off. If you have a anti-static grounding strap, put it on at this time. (See grounding strap package for detailed instructions.)

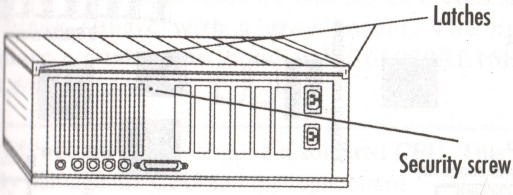


Figure 3E-1:
Location of security screw and latches

5. Remove the four screws attaching the drive shelf to t computer case then disconnect the floppy disk driv hard disk drive and power cables and gently lift t drive shelf out from the case (Figure 3E-2).

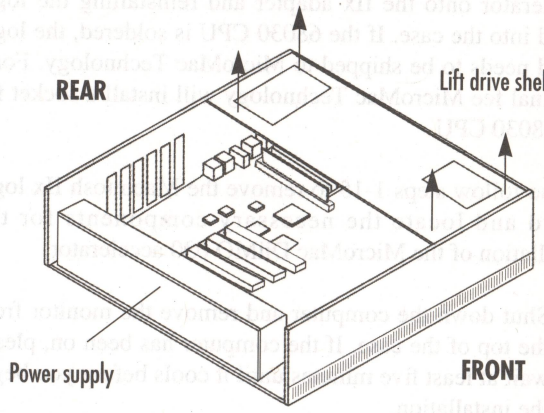


Figure 3E-2:
Location of drive shelf

6. Once you have removed the drive shelf, locate the lo board and refer to Figure 3E-3 as you proceed remove the logic board from the case.

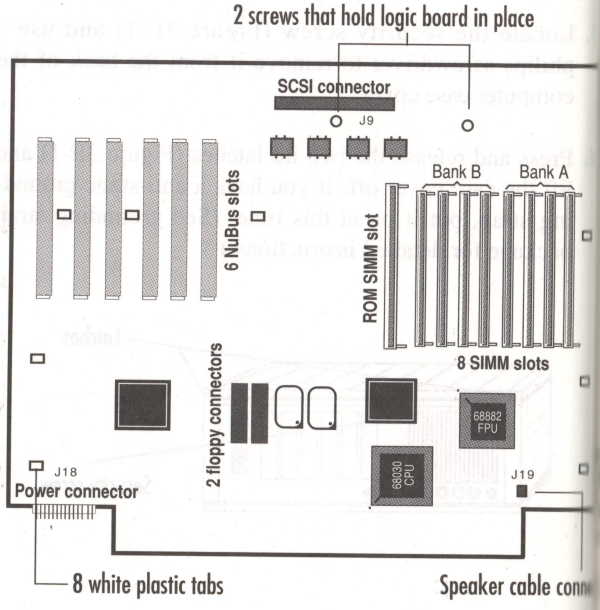


Figure 3E-3:
Macintosh IIx logic board

7. Remove any video or NuBus cards that are installed in the NuBus slots.

8. Remove the Reset/Programmer's switch if you have one installed, located on the outside of the computer case on the right hand side.

9. Remove the speaker cable connector from the logic board located at J-19.

10. Remove the power supply connector from the logic board at J-18.

11. Remove the two screws that hold the logic board in place located by the hard disk drive ribbon connector (SCSI connector) at J-9.

12. Locate the eight white plastic clips that lock the logic board in place. The clips are released by pressing the exposed portion towards the front of the case. Release the clips and lift the board, starting with the clip closest to the front center of the case, then the left front, then the right. Keep working from left to right to release all the clips. Slide the logic board to the rear of the case and remove.

13. Place the logic board on a firm static-free surface. Locate the 68030 CPU on the logic board (Figure 3E-3). The CPU location is labeled "UI11" which is located left of the speaker cable connector. A socketed CPU is a gold square filled with a gray border. The gold square contains part number MC68030RC16B. The socketed CPU connects to a socket which attaches directly to the logic board. A soldered CPU consists of a black square with a gray border. The black square contains part number MC68030RL16B or XC68030RL16B.

Note: Do not attempt to remove a soldered CPU. This will severely damage the CPU and the logic board.

Locating and Identifying CPU Type

If You Have a Socketed CPU

14. If you have a socketed CPU, continue to follow the instructions at step 16.

If You Have a Soldered CPU

15. If you have a soldered CPU, remove the floppy and hard disk drive cables as well as the SIMMs and any NuBus cards from the logic board. You will need to ship your logic board to MicroMac Technology to be serviced. For a nominal fee MicroMac will:

- Test the logic board
- Unsolder the 68030 CPU
- Install a 68030 CPU
- Test the socket installation with the adapter and accelerator installed
- Send the tested unit back to you via 2-day shipping

Completely fill out the logic board service flyer that came with this manual. Carefully package your logic board along with the service flyer and a check made out for the appropriate service fee and ship it to the address mentioned at the bottom of the flyer.

Removing the 68030 CPU

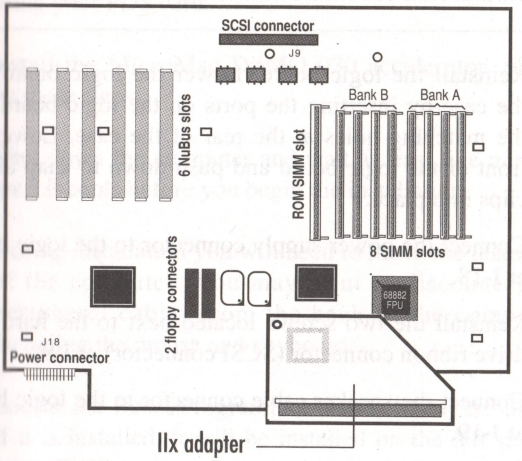
16. To remove the 68030 CPU you will need to use a medium flat-blade screwdriver. Carefully using the medium flat-blade screwdriver, gently pry the 68030 CPU from its socket by applying a small amount of pressure on each side of the CPU. Do not try to remove the CPU by prying on one side only, this will damage the CPU and the socket. Gently raise the CPU a small amount on each side, slowly moving around the perimeter of the CPU five to six times until the CPU comes out evenly. Please verify that the pins of the 68030 CPU are not bent or missing and place the chip in a safe place. Please also inspect the socket on the logic board to make sure it is not damaged. The adapter board plugs into this socket.

Note: MicroMac will not assume any liability for damage to the 68030 CPU, the socket or the logic board so please be careful!

---

17. Remove the IIx adapter from its anti-static shipping bag.

18. Plug the IIx adapter into the CPU socket on the IIx logic board. Refer to Figure 3E-4 for correct orientation. Press them together to make certain there is a tight fit. **Do not** use excessive force or wiggle the accelerator from side to side. If the adapter does not go in easily, pull it out and realign it with the CPU socket.



19. Remove the MicroMac DiiMO 030 accelerator from its anti-static shipping bag.

20. Plug the MicroMac DiiMO 030 accelerator into the IIx adapter by mating the accelerator with the connector on the IIx adapter. Refer to Figure 3E-5 for correct orientation. Press them together to make certain there is a tight fit. **Do not** use excessive force or wiggle the accelerator from side to side. If the accelerator does not go in easily, pull it out and realign it with the connector on the IIx adapter.

IIx Adapter Installation

Figure 3E-4: Orientation of the IIx adapter on the logic board

DiiMO 030 Accelerator Installation

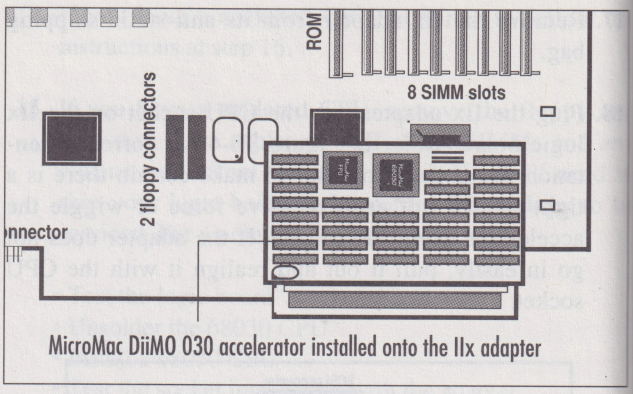


Figure 3E-5: Orientation of the MicroMac DiiMO 030 accelerator on the IIx adapter

Reinstalling the Logic Board

21. Reinstall the logic board. Lower the logic board into the case by inserting the ports on the logic board into the matching holes at the rear of the case. Lower the front of the logic board and push down to snap all the clips into place.

22. Connect the power supply connector to the logic board at J-18.

23. Reinstall the two screws located next to the hard disk drive ribbon connector (SCSI connector) at J-9.

24. Connect the speaker cable connector to the logic board at J-19.

25. Reinstall any NuBus cards into the NuBus slots.

26. Reinstall the Reset/Programmer's switch.

27. Reinstall the drive shelf and reconnect the hard and floppy disk drives.

28. Replace the case cover onto the computer. Press the cover down until the latches snap into place. Replace and tighten the security screw. Place the monitor back on top of the computer and reconnect any peripheral cables you may have disconnected.

29. Congratulations! You have now completed the hardware installation of the MicroMac DiiMO 030 accelerator. You are now ready to install the DiiMO 030 software. Please refer to Chapter 4, "Software Installation" to install the necessary software for your MicroMac DiiMO 030 accelerator.

Macintosh SE/30 Installation

The Macintosh SE/30 has one Processor Direct Slot (PDS). The MicroMac DiiMO 030 accelerator mounts directly into the PDS slot of the Macintosh SE/30.

The MicroMac DiiMO 030 for the Macintosh SE/30 is designed with a PDS connector on the accelerator for an optional PDS card (such as a video card for an external monitor). If you currently have a PDS card installed in your computer, you should be able to plug it onto the accelerator. If possible, we recommend that you first install the MicroMac DiiMO 030 accelerator and test it before installing your PDS card.

To install the MicroMac DiiMO 030 accelerator, please follow these steps:

1. Shut down the computer and wait at least five minutes until it cools before you begin the installation.
2. During installation you will need to move the main unit of the computer. You may want to disconnect the peripheral cables from the back of the computer, including the mouse and keyboard.
3. Locate the Reset/Programmer's switch (Figure 3F-1). If it is installed, it will be installed on the left side of your SE/30 next to the stereo audio jack, modem and printer ports. You will need to remove this switch before proceeding.

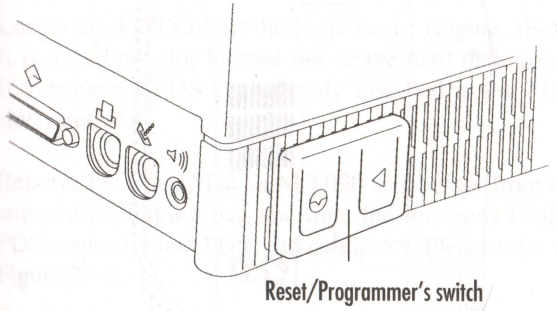


Figure 3F-1: *Reset/Programmer's switch*

4. Remove the four security screws using a To screwdriver (Figure 3F-2).

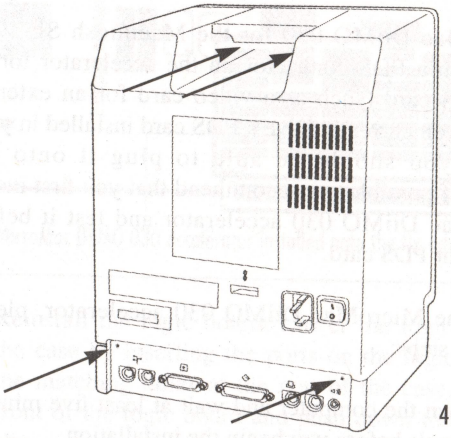


Figure 3F-2: *Location of security screws*

5. With the screws removed, use the case spreader too (or a medium flat-blade screwdriver) to carefull remove the case. Place the nose of the case spreade tool in the SE/30 case seal and gently open a 1/8" gap Continue opening the gap by moving uniformly alon the seal (Figure 3F-3) while spreading slowly to avoi damaging the seal. Some gentle rocking of the cas may be required but it will eventually loosen. Carefull lift the case from the chassis and set it away from you work area.

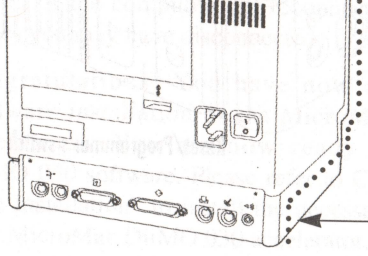


Figure 3F-3: *Opening the SE/30 case*

6. If you have a anti-static grounding strap, put it on at this time. (See grounding strap package for detailed instructions.)

7. Locate the CRT (picture tube) driver card on the end of the CRT (Figure 3F-4). **Without** removing any of the wires that are attached to the CRT driver card, pull the card gently off and away from the CRT. This step helps to prevent any possible damage to the CRT when installing the MicroMac DiiMO 030 accelerator.

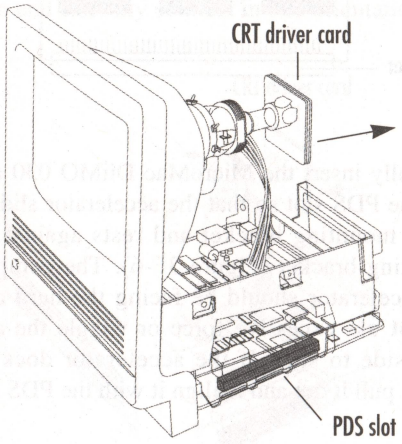


Figure 3F-4: Location of CRT driver card and PDS slot

Note: MicroMac will not assume any liability for damage to the CRT driver card, picture tube or internal components of the SE/30 so please be careful!

8. Locate the PDS slot on the logic board (Figure 3F-4). It is a 120-pin slot located left of the hard disk drive. If you have a PDS card already installed in the PDS slot, remove it.

9. Remove the MicroMac DiiMO 030 accelerator from its anti-static shipping bag and note the locations of the PDS connector and PDS card connector. Please refer to Figure 3F-5.

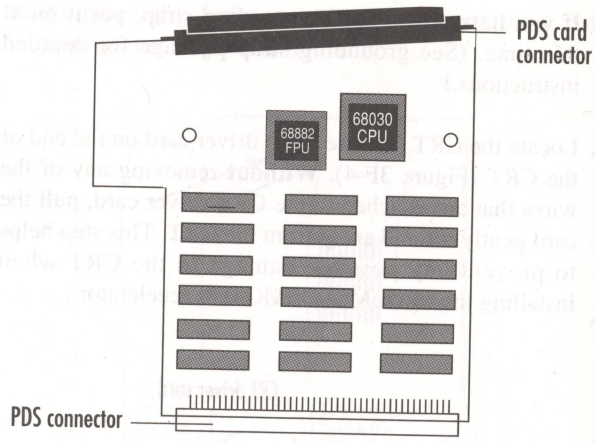


Figure 3F-5:
SE/30 PDS adapter

MicroMac DiiMO 030 Accelerator Installation

10. Carefully insert the MicroMac DiiMO 030 accelerator into the PDS slot so that the accelerator slides into the upper mounting bracket and rests against the lower mounting bracket (Figure 3F-6). The components on the accelerator should be facing the hard disk drive. **Do not** use excessive force or wiggle the accelerator from side to side. If the accelerator does not go in easily, pull it out and realign it with the PDS slot.

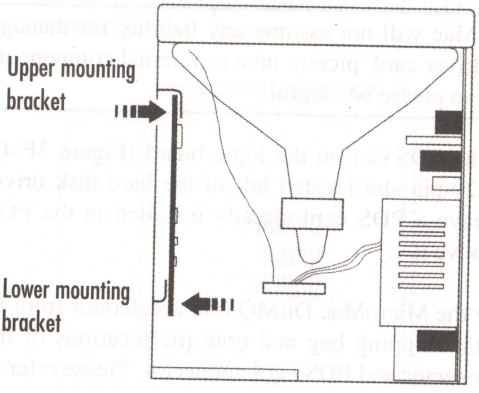


Figure 3F-6:
Installing the MicroMac DiiMO 030 accelerator

11. If you had a PDS card installed in the PDS slot of your SE/30 or are planning to install a PDS card, simply plug it into the PDS card connector (Figure 3F-5) on the top of the accelerator. **Do not** use excessive force or wiggle the PDS card from side to side. If the PDS card does not go in easily, pull it out and realign it over the PDS card connector on the accelerator.

12. Reconnect the CRT driver card to the CRT by aligning the holes on the driver card to the pins on the CRT (Figure 3F-7). The pins and holes are in a circular pattern and can only connect in one orientation.

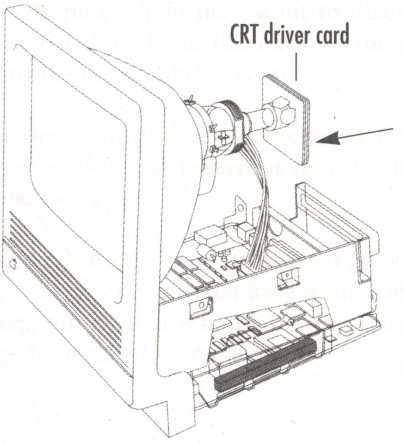


Figure 3F-7:
Reinstalling the CRT driver card

13. Replace the case cover onto the computer. Replace and tighten the four security screws.

14. Reinstall the Reset/Programmer's switch (if one was installed) on the left side of the case (Figure 3F-1).

15. Congratulations! You have now completed the hardware installation of the MicroMac DiiMO 030 accelerator. You are now ready to install the DiiMO 030 software. Please refer to Chapter 4, "Software Installation" to install the necessary software for your MicroMac DiiMO 030 accelerator.

MicroMac DiiMO 030 Accelerator

Macintosh LCIII Installation

The Macintosh LCIII has one Processor Direct Slot (PDS). The MicroMac DiiMO 030 accelerator mounts directly into the PDS slot of the Macintosh LCIII.

To install the MicroMac DiiMO 030 accelerator, please follow these steps:

1. Shut down the computer and remove the monitor from the top of the case. If the computer has been on, please wait at least five minutes until it cools before you begin the installation.

2. During installation you will need to move the main unit of the computer. You may want to disconnect the peripheral cables from the back of the computer, including the mouse and keyboard.

3. Locate the security screw (Figure 3G-1) and use a philips screwdriver to remove it from the back of the computer case cover.

4. Press and release the two lid latches (Figure 3G-1) and lift the case cover off. If you have a anti-static grounding strap, put it on at this time. (See grounding strap package for detailed instructions.)

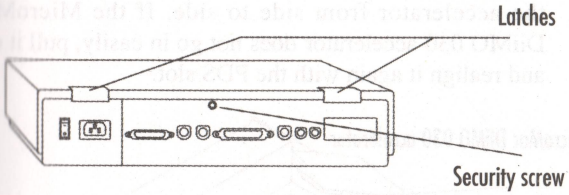


Figure 3G-1:
Location of security screws and latches

5. Locate the PDS slot on the logic board (Figure 3G-2). It is a 120-pin socket located on the left side of the logic board. If there is a board already installed in the PDS slot you should first identify what its function is and decide if it critical to the operation of your Macintosh. If it is critical and cannot be removed, you cannot use the DiiMO 030 accelerator.

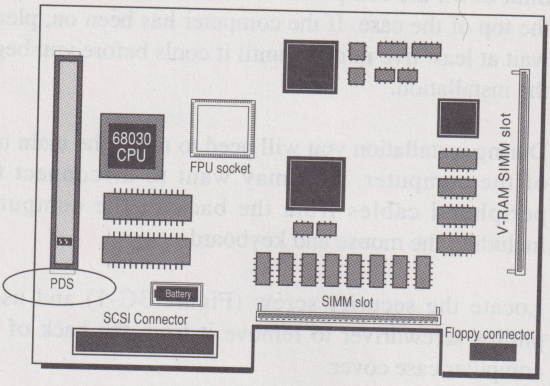


Figure 3G-2:
Location of PDS slot

6. Remove the MicroMac DiiMO 030 accelerator from its anti-static shipping bag.

MicroMac DiiMO 030 Accelerator Installation

7. Carefully insert the MicroMac DiiMO 030 accelerator into the PDS slot (Figure 3G-3). Align the accelerator directly over the PDS slot. The components on the accelerator should be facing downwards. Push down firmly on the top edge of the accelerator until it is completely seated. **Do not** use major force or wiggle the accelerator from side to side. If the MicroMac DiiMO 030 accelerator does not go in easily, pull it out and realign it again with the PDS slot.

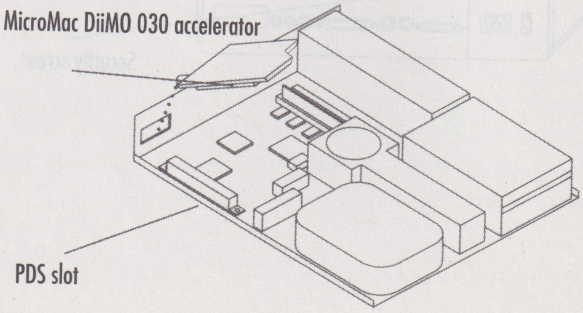


Figure 3G-3:
Installing the MicroMac DiiMO 030 accelerator

8. Replace the case cover onto the computer. Press the cover down until the latches snap into place. Replace and tighten the security screw. Place the monitor back on top of the computer and reconnect any peripheral cables you may have disconnected.

9. Congratulations! You have now completed the hardware installation of the MicroMac DiiMO 030 accelerator. You are now ready to install the DiiMO 030 software. Please refer to Chapter 4, "Software Installation" to install the necessary software for your MicroMac DiiMO 030 accelerator.

DiiMO 030 Software Installation

This chapter explains how to install and use the DiiMO 030 Control Panel. You must install the DiiMO 030 Control Panel software into the System folder on your hard disk drive before using the MicroMac DiiMO 030 accelerator. Furthermore, you must use System 6.0.7 or greater.

Installing the DiiMO 030 Control Panel

To install the necessary DiiMO 030 software, please follow these steps:

1. Turn on your Macintosh.

2. After the Macintosh boots, insert the DiiMO 030 Start-up disk and read any "READ ME" files on the disk for the latest DiiMO 030 update information.

3. Copy the DiiMO 030 Control Panel located in the Control Panels folder on the DiiMO 030 Start-up disk into the System folder on the hard disk as shown in Figure 4-1.

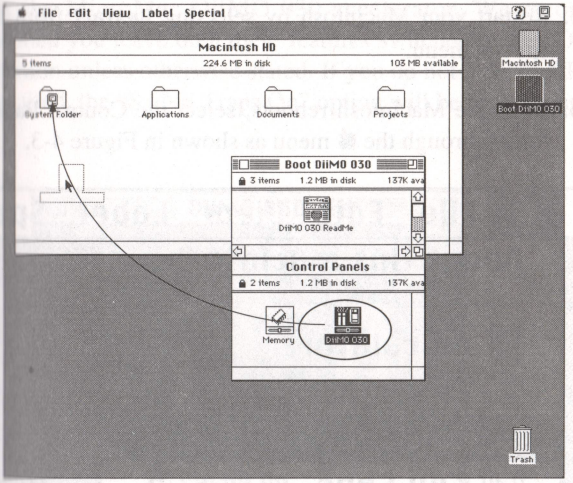


Figure 4-1:
Installing the DiiMO 030 Control Panel into the System folder

With System 7 and above the following dialog box wi
appear:

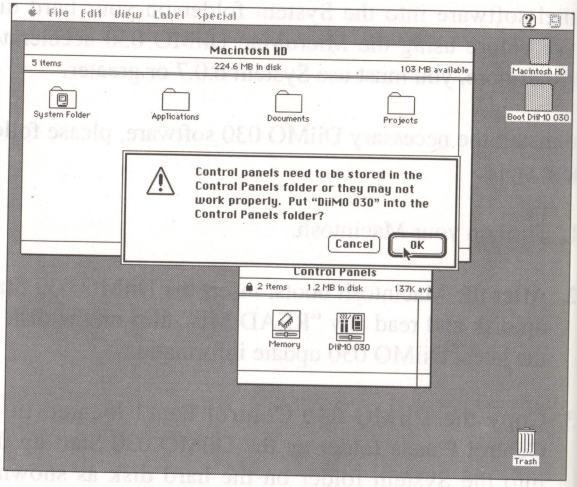


Figure 4-2: *Control Panels dialog box*

4. Click on "OK" or press the Return key to place the file into the Control Panels folder.

5. Restart your Macintosh by selecting **Restart** from the **Special** menu.

6. After the Macintosh reboots, select the Control Panels folder through the menu as shown in Figure 4-3.

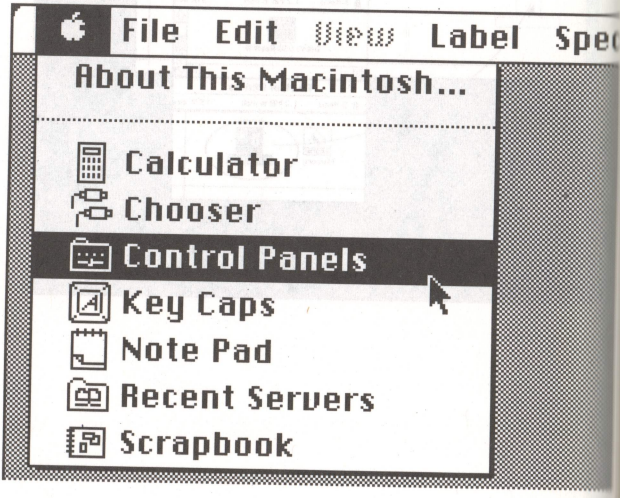


Figure 4-3: *Opening the Control Panels folder*

7. Locate and double click on the DiiMO 030 Control Panel (Figure 4-4) to activate it.

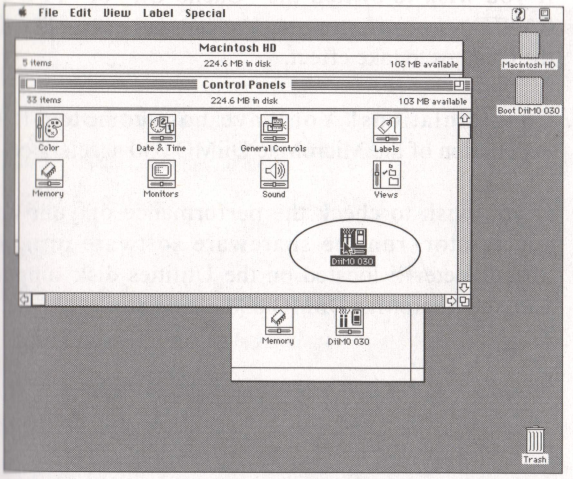


Figure 4-4:
Locating the DiiMO 030 Control Panel

DiiMO 030 Control Panel

The DiiMO 030 Control Panel (Figure 4-5) provides switches to enable and disable the two features available for the MicroMac DiiMO 030 accelerator. We recommended you leave both these features switched to the "On" position unless otherwise stated. If you do not have an FPU installed, the "SANE Traps On" option will be grayed out.

Figure 4-5:
DiiMO 030 Control Panel

No Reboot Required

8. It is not necessary to reboot the system in order for th DiiMO 030 Control Panel to be operational. Howeve if you wish to switch the "Cache On" or "FPU fo SANE" on or off, you must restart your computer fo the changes to take effect.

You are Done

9. Congratulations! You have now completed th installation of the MicroMac DiiMO 030 accelerator.

Performance Check

10. If you wish to check the performance of your new accelerator, run the shareware software program Speedometer™ located on the Utilities disk supplied with the MicroMac DiiMO 030 accelerator.

Troubleshooting Guide

Compatibility Tips A-2
Booting with the Start-Up Disk A-3
Troubleshooting Recommendations A-3
Isolating the Problem A-4
Identifying the Problem A-4
Intermittent or Repeatable Problems A-5
Problems caused by Software or Hardware A-5
Technical Support Checklist A-6
No Start-Up Chime A-8
Chime, but no Picture A-9
Cryptic Error Message by Boot Attempt A-9
Macintosh will not Boot A-10
Macintosh Boots Partially A-11
Macintosh Boots from Floppy Disk but not Hard Disk Drive A-11
Macintosh Boots Partially from Hard Disk Drive A-12
Macintosh Works for Several Hours but Crashes Unexpectedly A-13
One Particular Application Crashes A-14
An Application Requires a 68030 or Higher Processor A-15
No Noticeable Speed Increase A-15

Compatibility Tips

The MicroMac DiiMO 030 accelerator has been designed to maximize compatibility with your Macintosh software and hardware. Before calling the MicroMac Technical Support department with any problems concerning your accelerator, please follow the compatibility tips and Troubleshooting information provided in this chapter.

System software requirements:

- System 6.0.7 or greater

  Use Tune-up 1.1.1 on your System 7 software with a DiiMO 030 accelerator.

  If you are using System 7.5, we recommend that you update to System 7.5.1 by installing System 7.5 Update 1.0.

  Tune-up 1.1.1 and System 7.5 Update 1.0 are available by Apple over the Internet or through online services such as America Online.

- Make certain 32-Bit Addressing is turned on in the Memory Control Panel.

- If possible, upgrade your applications to the most current versions available.

Booting with the Start-up Disk

A DiiMO 030 Start-up disk is supplied with your MicroMac DiiMO 030 accelerator to aid in troubleshooting your Macintosh. The Start-up disk has the necessary software to boot your Macintosh with the accelerator installed.

When you cannot boot from the hard disk with the accelerator installed, try booting with the Start-up disk.

Note: Booting from the Start-up disk by-passes the System folder on the hard disk and uses the one on the Start-up disk.

Troubleshooting Recommendations

If you have more than one hard disk drive installed on your Macintosh disconnect all but the one you want to boot from and boot again from the Start-up disk. If you still get errors or System lock-ups, disconnect all SCSI devices as well as the internal hard disk drive. Boot with the Start-up disk and check the operation of the Macintosh. If the problem still persists please call the MicroMac Technical Support department for assistance.

If booting from the Start-up disk appears to function correctly when all hard disk drives are disconnected, then your problem is most likely on the hard disk or the hard disk drive itself. You will need to install a "Temporary System" on the hard disk. Please refer to Appendix B, "Macintosh Procedures" on how to install a "Temporary System". If the Macintosh boots from the hard disk with the "Temporary System" installed then do a "Clean System" installation of your System software. If the Macintosh does not boot from the hard disk with the "Temporary System" then install a new hard disk driver or back up the hard disk, reformat it and install a "Clean System".

If the operation of your Macintosh still appears unstable, please call the MicroMac Technical Support department for further assistance.

Isolating the Problem

Your MicroMac DiiMO 030 accelerator has been tested before shipping. If you have encountered any problems with the installation or operation of your MicroMac DiiMO 030 accelerator, this Troubleshooting Guide will assist you in troubleshooting your Macintosh.

Generally, careful analyzing and methodical isolation are the fastest way to get to the source of the problem. The inoperation of your Macintosh may, for example, result from:

- Improper installation of accelerator
- Improper memory configuration on the logic board
- Bad SIMMs on the logic board
- A corrupted System folder
- Incompatible extensions (INITs) and/or control panels in the System folder
- An outdated version of your hard disk driver software
- An old version of an application
- A defective or loose SCSI cable
- Improver termination on the SCSI bus
- A corrupted boot block on the hard disk drive
- Improper heap allocation for your system
- A defective power supply
- A defective logic board

Any of these causes may result in similar symptoms, therefore, it is important to proceed methodically to isolate the problem.

Identifying the Problem

It is important to classify whether the problem is intermittent, repeatable with slightly different symptoms or repeatable with identical symptoms. Each problem may either be caused by software or hardware, but this classification helps you and/or the Technical Support personnel at MicroMac Technology pinpoint the problem(s).

Intermittent or Repeatable Problems

Intermittent crashes happen at unpredictable times and intervals. They typically indicate a software problem.

Repeatable crashes with slightly different symptoms are invoked by following a well defined set of actions. Each crash manifests itself with slightly different symptoms.

Repeatable crashes with identical symptoms can be invoked by following a well defined set of actions. Each crash manifests itself with identical symptoms.

Problem caused by Software or Hardware

As a next step it is a good idea to determine whether the problem is caused by software or hardware. A good technique is to boot the accelerated Macintosh from the back-up of the DiiMO 030 Start-up disk (Did you remember to back-up your disk? If you haven't already done so, please do it now). Try to create a repeatable crash or work a while to find out whether an intermittent crash occurs.

Additionally it may be necessary to disconnect any external hard disk drives as well as the internal hard disk drive and the SCSI cable and work only with the floppy disk drive to eliminate the possible influence of any SCSI devices, especially the influence of a corrupted boot block or a corrupted System file on the hard disk.

If you have made many upgrades at the same time, try running your Macintosh without the accelerator installed. If you are not able to easily solve a problem with your Macintosh, you may wish to contact your dealer or MicroMac Technology for technical support.

However, the fastest and most economical solution to your problem is to read through the Troubleshooting Guide before consulting with the MicroMac Technical Support department. In many cases the Technical Support personnel will ask you to run the tests described in this chapter.

Technical Support Checklist

If you still have a problem after consulting the Troubleshooting Guide, please have the following information and answers available before contacting the MicroMac Technical Support department.

Technical Support Questions Checklist

- ❑ Your particular Macintosh model
- ❑ The MicroMac product you own
- ❑ Product configuration (Speed in MHz, whether an FPU or SIMMs are installed, etc.)
- ❑ Problem description
- ❑ Sequence of steps to reproduce the problem
- ❑ System software version number
- ❑ Exact text of any error messages
- ❑ Application software version
- ❑ List of extensions (INITs) and control panels
- ❑ Hard disk drive model number and manufacturer
- ❑ What are the SCSI IDs?
- ❑ Is the SCSI bus correctly terminated?
- ❑ Is the Macintosh connected to a network?
- ❑ What printer are you using?
- ❑ What is the amount of free heap space available?

The MicroMac Technical Support department can be reached at **(714) 362-4953.** Support hours are between 8:30 A.M. and 5:00 P.M. PST/PDST.

You can also contact Technical Support on the Internet at the following Internet address: **support@micromac.com**

Notes

No Start-up Chime

Symptom:	Macintosh will not chime when turned on.
Explanation:	If your Macintosh does not chime after the installation of the MicroMac accelerator, it is not passing one of the most basic tests and is most likely not going to boot and work properly. Please consult the following list of possible causes and remedies to find a solution. If none of the suggest remedies solve the problem, remove or disable the MicroMac accelerator to verify the operation of your Macintosh without the MicroMac accelerator installed.

Possible Cause:	Remedy:
No power supplied to your Macintosh	Verify and correct the status of power strip, power cable and power switch. Check for fan or hard disk drive noise to verify that the Macintosh is powered on. Check for audible (floppy or hard disk drive noise) or visual (screen) booting signs.
Speaker not connected	Check speaker connection.
No power to logic board	Check power connection to logic board.
Floppy or hard disk drive not connected properly	Check for proper floppy and hard disk drive cable connection.

Broken SIMM socket tabs on the logic board	Check for broken SIMM socket tabs on the logic board (contact MicroMac Tech Support for help).

Chime, but no Picture

Symptom:	**Macintosh chimes, but no picture appears on the screen.**
Explanation:	If your Macintosh chimes after the installation of the MicroMac accelerator then the first hardware tests have passed successfully. Please consult the following list of possible causes and remedies to find a solution to the problem of not having a picture appear on the screen.
Possible Cause:	**Remedy:**
Brightness turned down	Check the brightness control dial. Turn it up to a preferred brightness level.

Cryptic Error Message by Boot Attempt

Symptom:	**The screen darkens and shows a cryptic error message with a "F" when the computer accesses the hard disk drive.**
Explanation:	The cryptic error message indicates that the Macintosh has interrupted the booting sequence. If you see an error message with a "F", there is a good chance that the problem is software related. Try the suggested remedies. If the problem persists, remove or disable the MicroMac accelerator to verify the operation of your Macintosh without the accelerator installed.

Possible Cause:	Remedy:
Driver is not up-to-date	Rewrite the hard disk driver with an updated version (contact the hard disk drive manufacturer for an upgrade) or use Størware (does not support all hard disk drives).

Macintosh will not Boot

Symptom:	**Macintosh chimes but the only item that appears on the screen is a disk icon with a blinking "?". The Macintosh will not boot from the DiiMO 030 Start-up disk or from another hard disk drive.**
Explanation:	This situation indicates that the Macintosh cannot find a proper boot disk. You should first attempt to boot from a floppy disk. If the problem persists, remove or disable the MicroMac accelerator to verify the operation of your hard disk drive with an un-accelerated Macintosh.

Possible Cause	Remedy:
Bad floppy disk	Verify floppy disk operation by booting the floppy disk on another Macintosh system.
Floppy or hard disk drive not connected properly	Check for proper floppy and hard disk drive cable connection.
Hard disk boot block has incompatible driver	Rewrite hard disk driver with an updated version (contact the manufacturer for an upgrade) or use Størware (does not support all hard disk drives).
Corrupted system	You need to reinstall a "Clean System". Please refer to Appendix B, "Macintosh Procedures".

Macintosh Boots Partially

Symptom:	**Macintosh chimes, boots and screen appears but freezes shortly after the MM-Icon appears on the screen.**
Explanation:	This situation indicates that the MicroMac accelerator works only partly.

Possible Cause:	Remedy:
INIT conflict	Restart your Macintosh while holding down the Shift key (extensions off). After the Macintosh finishes booting, remove all your non-Apple control panels and extensions from the System folder except for the one necessary for the MicroMac accelerator. Now add each control panel and extension into the System folder one at a time, restarting your Macintosh after each one. When you find the offending control panel or extension, restart your Macintosh while holding down the Shift key. Now locate the problem file and remove it from the system.

Macintosh Boots from Floppy Disk but not from Hard Disk Drive

Symptom:	**Macintosh chimes, screen appears and boots from the DiiMO 030 Start-up disk, but does not mount the hard disk drive on the desktop. Macintosh does not boot from hard disk drive.**
Explanation:	The MicroMac accelerator is properly working but the hard disk drive is either not connected properly, is damaged or has an incompatible driver.

Possible Cause:	Remedy:
Hard disk drive not connected properly	Check for proper hard disk drive cable connection. Connect the SCSI cable and power cable of hard disk drive.
SCSI-ID conflict	Assign for every single device in the SCSI-bus one unique ID-number.
Termination problem	Have at least one, but no more than two terminations on the SCSI-bus. The termination must be on the end of the SCSI-chain.
Hard disk boot block has incompatible driver	Run hard disk drive diagnostic and repair program. Repair or reformat hard disk driver by using a disk mount utility such as SCSI-Probe.

Macintosh Boots partially from Hard Disk Drive

Symptom: **Macintosh boots reliably from the the DiiMO 030 Start-up disk, attempts to boot from hard disk drive but crashes half way during the boot process.**

Explanation: Incompatible software in the System folder prevents the Macintosh from properly completing the booting process properly. This is commonly referred to as an "INIT conflict". You need to correct this problem before proceeding.

Possible Cause:	Remedy:
INIT conflict	Restart your Macintosh while holding down the Shift key (extensions off). After the Macintosh finishes booting, remove all your non-Apple control panels and extensions from the System folder except for the one necessary for the MicroMac accelerator. Now add each control panel and extension into the System folder one at a time, restarting your Macintosh after each one. When you find the offending control panels or extension, restart your Macintosh while holding down the Shift key. Now locate the problem file and remove it from the system.
Corrupted System	You need to reinstall a "Clean System". Please refer to Appendix B, "Macintosh Procedures".

Symptom: **Macintosh boots from hard disk drive but crashes frequently or after a few hours of operation.**

Macintosh Works for Several Hours but Crashes Unexpectedly or Works Unreliably

Explanation: This situation can be caused by either a hardware or software problem. Patience, persistence and logical thinking is required to identify the cause of the problem. Please read through the following list of possible causes and remedies to isolate your particular problem.

Possible Cause:	Remedy:
Corrupted system	You need to reinstall a "Clean System". Please refer to Appendix B, "Macintosh Procedures".
Defective SIMM	Replace SIMM.
Broken SIMM socket tabs on logic board	Check for and repair broken tabs.
INIT conflict	Restart your Macintosh while holding down the Shift key (extensions off). After the Macintosh finishes booting, remove all your non-Apple control panels and extensions from the System folder except for the one necessary for the MicroMac accelerator. Now add each control panel and extension into the System folder one at a time, restarting your Macintosh after each one. When you find the offending control panel or extension, restart your Macintosh while holding down the Shift key. Now locate the problem file and remove it from the system.

One Particular Application Crashes

Symptom:	**Macintosh boots from floppy disk and hard disk drive, but a particular application will not run.**
Explanation:	Most likely there is a software problem. Please read through the following section to isolate your problem and correct it.

Possible Cause:	Remedy:
Incompatible software	Some new versions of popular software require upgraded ROM-codes on the logic board. Even though you now have a 68030 CPU on the accelerator, you still have the original outdated ROM-codes on the Macintosh's logic board. When purchasing software for your Macintosh make sure it is compatible with its ROM-codes.
Corrupted System	You need to reinstall a "Clean System". Please refer to Appendix B, "Macintosh Procedures".

Symptom: **An application requires a 68030 or higher CPU.**

An Application Requires a 68030 or Higher Processor

Explanation: You need to make sure that the application you want to run only requires a 68030 processor found on the MicroMac accelerator and not the updated logic board ROM codes.

Possible Cause:	Remedy:
Incompatible software	Call the software vendor of your applications for information on the compatibility of their software with accelerators.

Symptom: **I do not see a speed increase.**

No Noticeable Speed Increase

Explanation: The MicroMac accelerator may not be installed or the necessary software may not have been loaded.

Possible Cause:	Remedy:
Incorrect installation	Use Speedometer (located on the Utilities disk supplied with your MicroMac accelerator) to determine the exact speed of your Macintosh. Compare the results with and without the MicroMac accelerator installed. Verify the current CPU type (it should be a 68030).

Installing a "Temporary System"

Use this procedure to isolate software extensions or control panel devices that do not appear to work together with a DiiMO 030 accelerator.

1. Boot your Macintosh with the DiiMO 030 Start-up disk that is provided with the DiiMO 030 accelerator.

2. Open the hard disk and locate the System folder (Figure B-1).

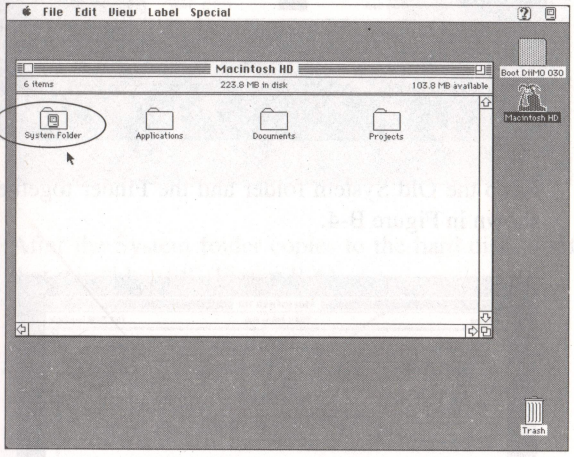


Figure B-1: Locating the System folder

3. Click on the System folder to rename it. An "I" beam cursor will be placed at the beginning of the name of the folder as shown in Figure B-2. Now rename the System folder to Old System folder.

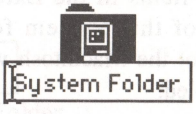


Figure B-2: Renaming the System folder to Old System folder

4. Open the Old System folder, locate the Finder and drag it onto the hard disk icon as shown in Figure B-3. This will place the Finder in the same window as the Old System folder.

Disabling the Old System Folder

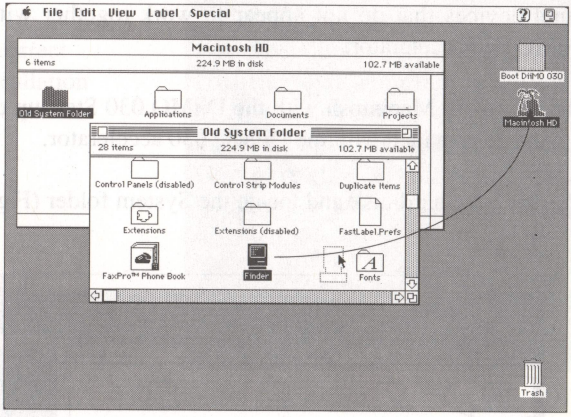


Figure B-3: *Removing the Finder from the Old System folder*

Keep the Old System folder and the Finder together as shown in Figure B-4.

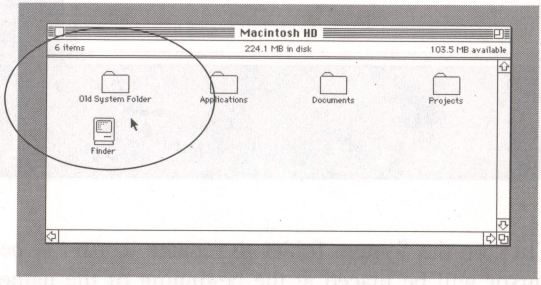


Figure B-4: *Finder located outside of Old System folder*

5. Copy the System folder from the DiiMO 030 Start-up disk to the hard disk as shown in Figure B-5. This procedure places a minimum System folder on the hard disk. The only items in the Extension and Control Panel folders of this System folder are the ones necessary to boot the Macintosh with the DiiMO 030 accelerator enabled.

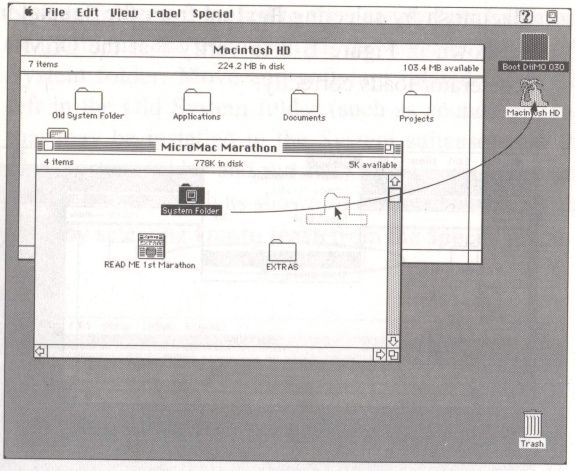


Figure B-5:
Copying the System folder from the MicroMac Start-up disk to the hard disk

After the System folder copies to the hard disk, verify that it is "blessed" (Figure B-6).

Figure B-6:
"Blessed" System folder

If the folder is not "blessed", open and close it one or two times. If the folder is still not "blessed", it is most likely due to another System folder being on the hard disk. You will need to locate and disable this second System folder by opening the folder, locating the Finder and removing it from the folder (Figure B-7).

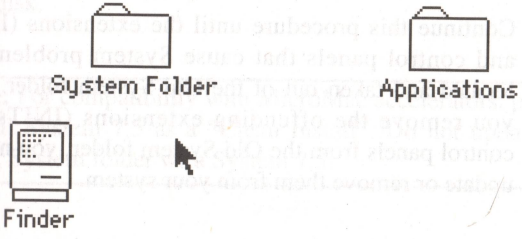


Figure B-7:
Finder removed from System folder

If the System folder is "blessed" then restart your Macintosh by selecting **Restart** from the **Special** menu as shown in Figure B-8 to verify that the DiiMO 030 accelerator loads correctly.

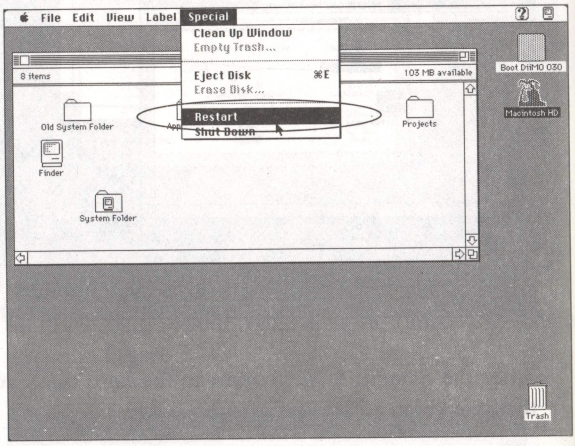


Figure B-8: Selecting Restart from the Special menu

Isolating Extension (INIT) and Control Panel Conflicts

6. Duplicate any prior activities that created errors or lock-ups to see if they still occur. If everything appears to function correctly, move more extension and/or control panels from the Old System folder to the new System folder and select **Restart** again.

7. After the Macintosh reboots, move any suspected or questionable extensions (INITs) and control panels from the Old System folder into the new System folder and select **Restart**. After the Macintosh reboots, verify the compatibility of these files. If they do not work correctly in the new System folder, remove them.

8. Continue this procedure until the extensions (INITs) and control panels that cause System problems are located and taken out of the Old System folder. After you remove the offending extensions (INITs) and control panels from the Old System folder, you need to update or remove them from your system.

9. If all the extension and control panels from the Old System folder are moved to the new System folder and no problems are encountered, the error is in the Old System folder. Move any software related items still left in the Old System folder (such as sounds or fonts that may be installed in the System suitcase) into the new System folder and put the Old System folder and Finder into the trash as shown in Figure B-9. Empty the trash by selecting **Empty Trash** from the **Special** menu.

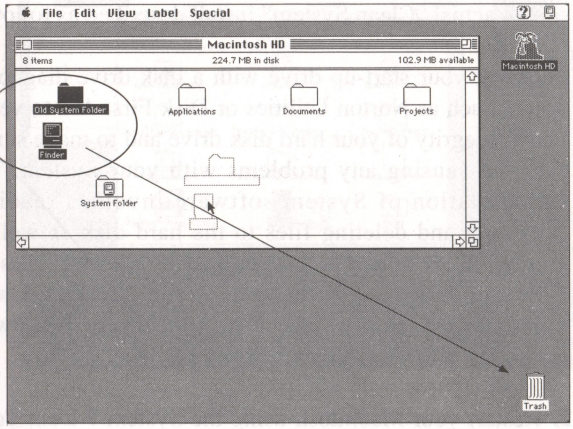


Figure B-9: *Moving the Old System folder and Finder to the Trash*

10. Now that you have isolated and removed the problem files from your system, a "Clean System" needs to be installed on the hard disk. If the System is 7.5 follow the "Clean Install" procedure on page B-6. If the System software version is lower than 7.5 use your System software install disks and install the System software into the existing System folder on the hard disk.

Note: For compatibility with MicroMac accelerators, please install System 7.5 as a "Clean Install". Do not update an older System folder with System 7.5.

Installing a "Clean System"

Reinstalling System software with a "Clean System" is usually the best way to free the System from any bugs or corruptions that may have occurred to your System over a period of time. However, there is a major distinction between reinstalling the System software and actually installing a "Clean System".

When a System is reinstalled, the existing System file is updated, not replaced. Updating System software does not usually correct the System resource files that may have become corrupted. The only way to correct this problem is to do an actual "Clean System" install described as follows:

1. Check your start-up drive with a disk drive diagnostic tool such as Norton Utilities or Disk First Aid to verify the integrity of your hard disk drive and to make sure it is not causing any problems with your System. The installation of System software involves reading, writing and deleting files to the hard disk as well as rewriting boot blocks. If your hard disk drive passes the diagnostic tests with no problems, proceed with installing a "Clean System" using the System software disks that came with your Macintosh.

2. Restart your Macintosh using the System 7 Disk Tools disk. After the Macintosh boots, locate the System folder on the hard disk. The folder should appear "blessed" with a picture of the Finder (Figure B-10).

Figure B-10: "Blessed" System folder

3. Click on the System folder to rename it. An "I" beam cursor will be placed at the beginning of the name of the folder as shown in Figure B-11. Now rename the System folder to Old System folder.

Figure B-11: Renaming the System folder to Old System folder

Disabling the Old System Folder

4. Before installing a "Clean System", you need to disable the System folder by removing the Finder. To do this procedure, open the System folder by double-clicking on it, locate the Finder and drag it to the trash as shown in Figure B-12. Empty the trash by selecting **Empty Trash** from the **Special** menu.

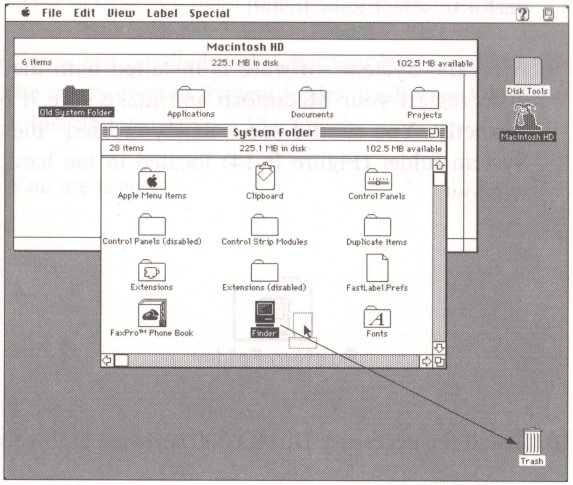


Figure B-12:
Locating the Finder and dragging it to the Trash

5. The disabled System folder should appear as shown in Figure B-13.

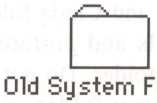


Figure B-13:
Disabled System folder

6. Shut down your Macintosh.

7. You are now ready to perform a "Clean System" install. Place the first System software installation disk into the floppy disk drive and boot your Macintosh from it.

System Software Installation Options

8. You will be presented with two System software installation options: (1) Easy Install which places the particular files needed by your Macintosh in a new System folder and (2) Customize which allows you to add or remove features that you need, such as networking options, printer drivers and various System files. For the "Clean Install" that you are about to perform, select Easy Install.

9. After the System software is installed onto the hard disk, restart your Macintosh and make sure it boots correctly. You should see a newly created "blessed" System folder (Figure B-14) located in the hard disk window.

Figure B-14: Newly created "blessed" System folder

Installing DiiMO 030 Software

10. Install the necessary DiiMO 030 software at this time.

11. Restart your Macintosh by selecting **Restart** from the **Special** menu. After the Macintosh boots, test the operation of the System by performing various System functions such as formatting disks and launching programs.

Moving System Files into the System Folder

12. If everything is running smoothly, return to the Old System folder and move all your application-specific folders (such as Aldus and Claris folders), extensions (INITs), control panels and preference files to the newly created System folder. Do not replace a file in the newly created System folder with the same file from the Old System folder. It is recommended that you drag your start-up items, extensions (INITs) and control panels to your new System folder in small groups and restart your Macintosh each time to make sure there are no conflicts you may have missed.

13. Before trashing the Old System folder, check to see that you have not missed any important files or documents. You will need to make sure that you copy over your fonts and sounds (as well as any fonts or sounds that may be installed in the System suitcase) from the Old System folder as well. If you are uncertain about trashing your Old System folder, back it up onto floppy disks in case you need to access it in the future.

14. If you are satisfied with what you have copied over to the newly created System folder, trash your Old System folder and restart your Macintosh.

15. You are done!

Apple Menu The menu indicated by the Apple symbol (apple) from which you choose desk accessories and items from the Apple Menu Folder.

Application A program that performs a specific task such as graphics, word processing, database management or accounting.

Cache Pronounced 'cash'. Memory that acts like RAM, but faster. The computer stores its most frequently used instructions in cache.

Control Panel A small program that allows you to adjust the Mac's operating features (such as desktop patterns, speaker volume or networking options).

CPU Central Processing Unit. The "brains" of the computer that does most of the intensive operating calculations.

CRT Cathode Ray Tube. The glass tube in a compact Macintrosh, such as the SE/30, in which a fast moving electron beam turns pixels on and off in order to create a picture on the screen.

Dialog Box A box that contains a message informing or requesting for information.

Extension A file that expands the Mac's System software capabilities.

FPU Floating Point Unit. A chip that takes over many of the operations of SANE and retrieves instructions straight from an application rather than having the CPU do all the work.

Icon A graphical representation of a file or an application on the screen.

INIT A small patching program that adds additional features to your operating system.

KB Kilobyte (1024 bytes). An amount of memory that can express a text line of 1024 characters, or roughly half a typed page.

MB Megabyte (1,048,576 bytes). An amount of memory equal to 1024K, or roughly 175,000 typed words.

Menu A list of commands that appear when you select a menu title with the mouse pointer. To select a command, you drag through the menu, highlight a command and release the mouse button.

PDS Processor Direct Slot. An expansion slot available on some Macintosh computers, such as the Macintosh LC, for add-on cards.

RAM Random Access Memory. Expandable memory where the Mac's operating system and applications are stored during power on, but will be lost at shut down.

ROM Read Only Memory. Non-erasable memory with the Mac's basic operating code (such as Quickdraw).

SANE Standard Apple Numerical Environment. Software routines for numeric operations (=, -, *, /...). Many operations performed by SANE can be taken over by a FPU.

SCSI Small Computer System Interface (pronounced 'skuzzy'). An industry-standard for a parallel bus interface.

SIMM Single In-Line Memory Module. Memory add-ons to expand RAM.

Trash An icon into which you put files to be deleted. You can also eject a disk by dragging it to the trash.

Window An area that displays information (icons or files) on the desktop. You can move, resize, open and close a window as well as manipulate its contents while it is displayed.

-0, 1, 2, 3, 4, 5, 6, 7, 8, 9-

120-pin 3B-2, 3C-2, 3F-3, 3G-2
32-Bit Addressing A-2
64KB cache 1-3, 2-1
68020 CPU 1-1, 2-1, 3A-1, 3A-3–4
68030 CPU 1-1–3, 2-1, 3D-1, 3D-3–4, 3E-1, 3E-3–4, A-15–16
68851 PMMU 1-1, 3A-1, 3A-4
820-0163-02 1-1
820-0228-A 1-1

-A-

accelerator connector 1-1
America Online 2-4, A-2
AMU 1-1, 3A-1, 3A-4
anti-static grounding strap 2-3, 3A-1, 3B-1, 3C-2, 3D-1, 3E-1, 3F-3, 3G-1

-B-

-C-

cache card 1-1, 3B-2
case spreader tool 2-3, 3F-2
Clean System A-3, A-10, A-13–15, B-5–7
Connectix
  RAM Doubler 2-2
Control Panels folder 1-3, 4-1–2, B-2
CRT driver card 3F-3, 3F-5
CRT (picture tube) 3F-3, 3F-5

-D-

DiiMO 030 Control Panel 1-3, 2-1, 4-1, 4-3–4
DiiMO 030 Installation
  II 3A-5
  IIci 3B-3
  IIcx 3D-6
  IIsi 3C-3
  IIvi 3B-3
  IIvx 3B-3
  IIx 3E-1
  LCIII 3G-3
  Performa 600 3B-3
  SE/30 3F-4
DiiMO 030 Start-up disk 1-3, 2-2, 4-1, A-3, A-5, A-10–12, B-1–2
Disk First Aid B-6
drive bay assembly 3D-2, 3D-5
drive shelf 1-1–2, 3A-2, 3A-6, 3E-2, 3E-6

-E-

Ethernet cards 3C-1
Extensions folder B-2

-F-
flat-blade screwdriver 2-3, 3A-3–4, 3D-2, 3D-4, 3F-2

-G-

-H-
hard disk drive cable 3C-4–5
hard disk drive ribbon connector 3A-3, 3A-6, 3E-3, 3E-6

-I-
II adapter 1-1, 3A-1, 3A-3–5
IIcx adapter 1-2, 3D-1, 3D-4–6
IIsi PDS adapter 1-1, 3C-1, 3C-3–5
IIx adapter 1-2, 3E-5
Internet 2-4, A-2

-J, K-

-L-
logic board removal
II 3A-2–3
IIcx 3D-1–3
IIx 3E-1–3
logic board service flyer 1-2, 3D-4, 3E-4

-M-
Macintosh
II 1-1, 2-2, 3A-1
IIci 1-1, 3B-1
IIcx 1-2, 2-2, 3D-5
IIsi 1-1, 2-2, 3C-1
IIvi 1-1, 3B-1
IIvx 1-1, 3B-1
IIx 1-2, 2-2
LCIII 1-3, 3G-1
Performa 600 1-1, 3B-1
SE/30 1-3, 2-3, 3F-1
MC68030RC16B 1-2, 3D-3, 3E-3
MC68030RL16B 1-2, 3D-3, 3E-3
Memory Control Panel A-2

-N-
New System See Clean System
Norton Utilities B-6
NuBus adapter 3C-1
NuBus cards 3A-3, 3A-6, 3D-4, 3E-3–4, 3E-6
NuBus slots 3A-3, 3A-6, 3B-1–2, 3C-1, 3E-3, 3E-6

-O-

-P-
PDS card 1-1–3, 3B-2, 3C-1, 3C-5, 3F-1, 3F-3, 3F-5
PDS card connector 1-1, 1-3, 3F-3

PDS connector 3F-3
PDS slot 1-1–3, 3B-1–3, 3C-1–5, 3F-1, 3F-3–5, 3G-1–3
philips screwdriver 2-3, 3A-1, 3B-1, 3C-1, 3D-1, 3E-1, 3G-1
power supply 1-1–3, 3B-3, 3D-2, 3D-5–6
power supply connector 3A-3, 3A-6, 3E-3, 3E-6

-Q-

-R-
RAM Doubler see Connectix
Reset/Programmer's switch 3A-3, 3A-6, 3D-2, 3E-3, 3E-6, 3F-1, 3F-5
RMA number 3C-1
ROM SIMM Slot 3B-2, 3C-2

-S-
SCSI cable 3C-4–5
SCSI cable connector 1-2
SCSI connector 3A-3, 3A-6, 3E-3, 3E-6
SCSI probe A-12
security screw 3A-1, 3A-6, 3B-1, 3B-4, 3C-2, 3C-4, 3D-1, 3D-7, 3E-1, 3E-6, 3F-2, 3F-5, 3G-1, 3G-3
SIMM slots 3D-3
socketed CPU 1-2, 3D-1, 3D-3–4, 3E-1, 3E-3–4
soldered CPU 1-2, 3D-1, 3D-4, 3E-1, 3E-3–4
speaker assembly 3D-3, 3D-5
speaker cable connector 1-2, 3A-3, 3A-6, 3E-3, 3E-6
Speedometer™ 4-4, A-16
Størware A-10
System 6.0.7 2-4, 4-1, A-2
System 7 1-3, 2-3–4, 4-2, A-2
System 7.5 2-4, A-2, B-5
System 7.5.1 2-4, A-2
System 7 Disk tools B-6
System folder 1-3, 2-2, 4-1, A-3, A-4, A-11, A-13–14, B-1–9
System 7.5 Update 1.0 2-4, A-2

-T-
Temporary System A-3, B-1
Torx screwdriver 2-3, 2F-2
Tune-up 1.1.1 2-4, A-3

-U-
U41 1-1
U67 1-1
UI13 1-1
UG13 1-1
UK10 1-2, 3D-3
UKI11 1-2, 3E-3
Utilities disk 2-2, 4-4, A-16

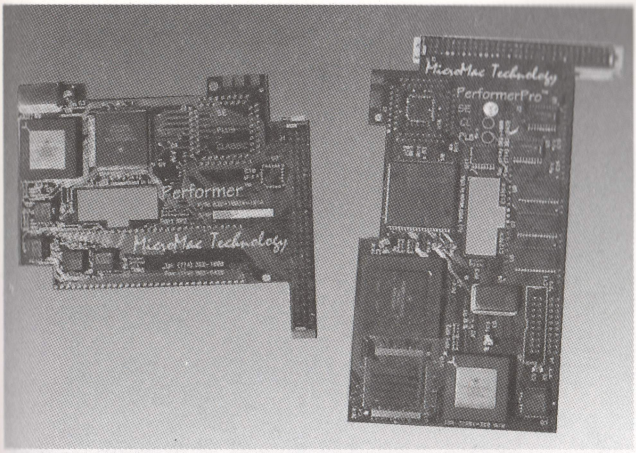
-V-
Virtual Memory 2-2

-W-

-X-
XC68030RL16B 1-2, 3D-3, 3E-3

-Y-

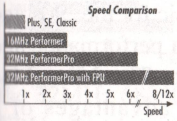
-Z-
Zero-wait state technology 1-3, 2-1



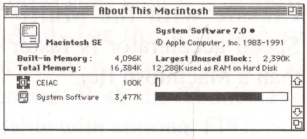
For the Plus, SE & Classic: The MicroMac Performer & PerformerPro Accelerator

Plenty of Speed for Your older Macintosh

The MicroMac Performer/PerformerPro accelerator line replaces the relatively low processing speed of the 7.8MHz 16-bit 68000 processor of the Macintosh Plus, SE or Classic with the high performance speed of a 32-bit 68030 processor. The accelerator is available in two speeds: the 16MHz Performer which boosts system performance up to 300% and the 32MHz PerformerPro with 64KB cache which boosts system performance up to 600%. Both accelerators accept an optional FPU (25MHz for the Performer and 32MHz for the PerformerPro) which increases math calculation speeds for spreadsheets and graphic programs up to 800%/1200% respectively.

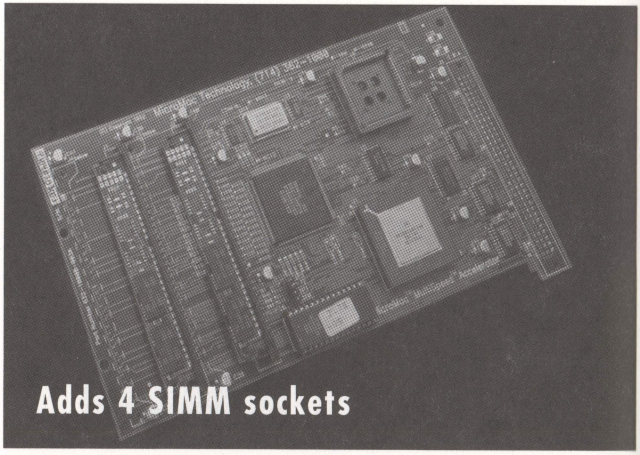


The Performer accelerator also allows you to go beyond 4MB of RAM by using Connectix's Compact Virtual Memory management software. With Compact Virtual, you can increase your total memory up to 16MB of RAM by utilizing your hard drive as Virtual Memory.



MicroMac Technology

MicroMac MultiSpeed Accelerator

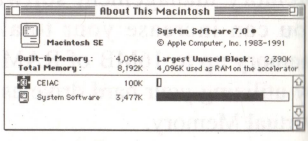


For the Plus, SE & Classic: The MicroMac MultiSpeed Accelerator

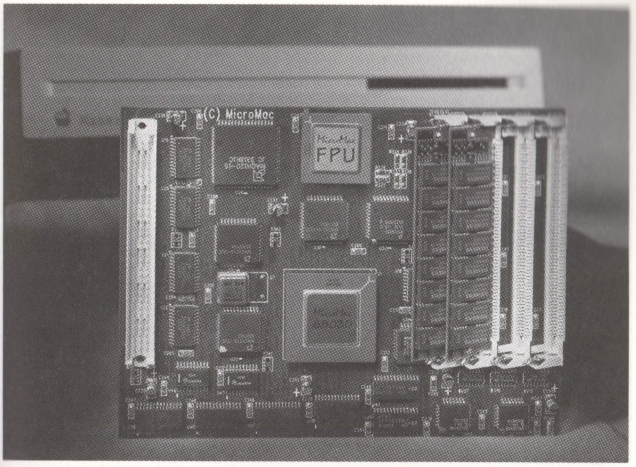
Professional Power Computing

With today's CPU intensive and memory hungry applications, one can never have enough power or memory. With the MicroMac MultiSpeed accelerator, you can upgrade your Macintosh Plus, SE or Classic for the '90s and enjoy the benefits of increased application performance and accessing the Internet/World Wide Web. The MicroMac MultiSpeed accelerator combines the advantages of a powerful 32MHz 68030 processor with optional FPU, boosting CPU speeds up to 900% and math calculations up to 1200%.

Super fast performance is achieved by employing 60ns DRAMs in the four accelerator SIMM slots. Connectix's Compact Virtual 3.0.2 (required if you want to go beyond 4MB) combines your existing memory on the logic board with the memory on the accelerator for a total of 8MB or 20MB (16MB System memory and 4MB fast RAM disk). A Macintosh Plus, SE or Classic with the MultiSpeed accelerator is faster than a Macintosh IIci.



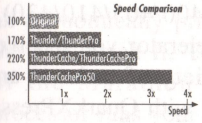
MicroMac Technology



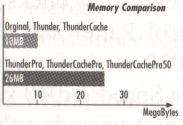
MicroMac Thunder Series Accelerator

For the LC, LCII (Performa 400/405/410/430) & Color Classic: The MicroMac Thunder Series Accelerator

Blazing Speed and Performance!



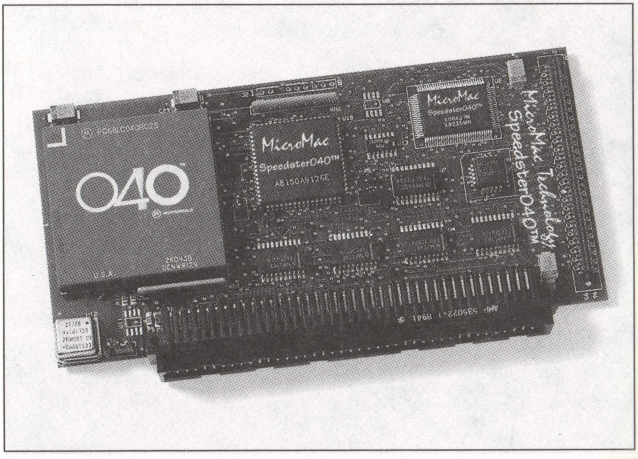
The MicroMac Thunder series line of accelerators offer the best hardware upgrade for your Macintosh LC, LCII Performa (400/405/410/430) or Color Classic. The plug and play power of the 32MHz 68030 ***Thunder*** accelerator with 16MHz 68881 FPU speeds up your Macintosh by 170% and math calculations up to 400%. With the 32MHz 68030 ***ThunderCache*** accelerator, your Macintosh's speed is increased up to 220% by utilizing a 32KB ultra-fast cache memory. If you add the optional 32MHz 68882 FPU, you boost the performance of such programs as spreadsheets and graphic rendering applications up to 700%.



With the 32MHz 68030 ***ThunderPro*** or ***ThunderCachePro*** accelerators you break the 10MB barrier by loading the onboard SIMM slots with 1, 2 or 4MB SIMMs. And, for the ultimate in performance, the ThunderCachePro is also available at 50MHz for a 350% speed increase. Both the ThunderPro and ThunderCachePro are available with optional FPU.

MicroMac Technology

MicroMac Speedster040 Accelerator

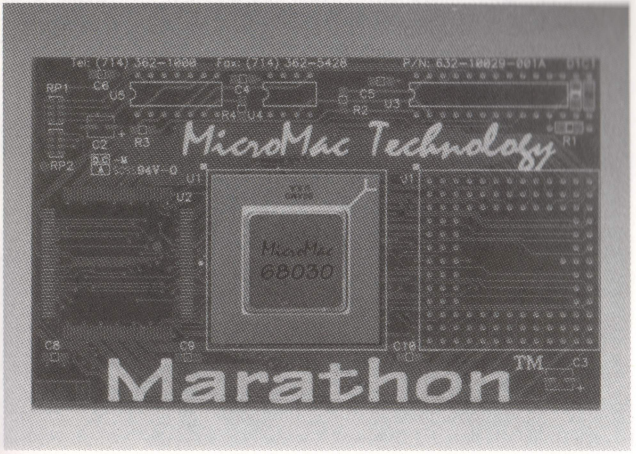


For the LC & LCII (Performa 400/405/410/430): The MicroMac Speedster040 Accelerator

Blazing '040 Performance

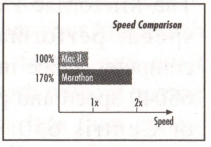
Today's software requires top-level performance from your Macintosh LC and LCII (Performa 400/405/410/430). With the MicroMac Speedster040 accelerator you receive 68040 power to perform a wide variety of tasks at an efficient pace. If you work extensively with QuarkXPress, Photoshop, Illustrator, Microsoft Word, Excel or accessing the Internet/World Wide Web then the Speedster040 is the accelerator specifically designed for your needs.

You receive all the benefits and power of 68040 software. With the 50MHz Speedster040 you will notice a speed boost of up to four times, outpacing the PowerPC 6100/7100/8100 in '040 emulation mode while running 68040 based applications. Better yet, the Speedster040 supports your older 68030 software as well. A few clicks of the mouse in the Speedster040 Control Panel and the accelerator is set to "downshift" to 68030 mode for your 68030 applications and utilities. With the Speedster040 you get the power you need today with the best upgrade value for your Macintosh LC and LCII (Performa 4xx).



For the Macintosh II: The MicroMac Marathon Accelerator

Economical Processing Power



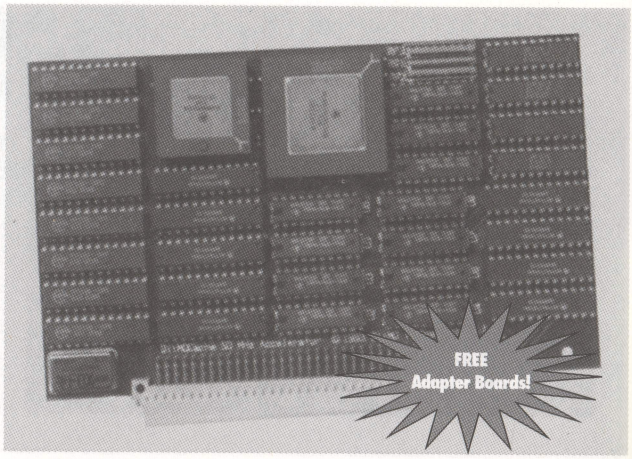
The MicroMac Marathon accelerator is an economically priced accelerator for the Macintosh II. The increased speed of the Marathon's 32MHz 68030 processor runs your Macintosh II up to 170% faster. The enhanced speed makes working with large word processing and database files extraordinary easy. With the optional 16MHz 68882 FPU upgrade you can replace the slow 68881 FPU and increase the performance of math intensive work, such as spreadsheets, up to 200%.

With the Marathon accelerator you can take advantage of the 68030's PMMU (Paged Memory Management Unit) and address more than 8MB of physical RAM or utilize Virtual Memory software such as RAM Doubler.

The Marathon accelerator installs easily into the CPU socket on the logic board. Simply unplug the 68020 processor from the CPU socket and install the Marathon accelerator in its place.

MicroMac Technology

MicroMac DiiMO 030 Accelerator



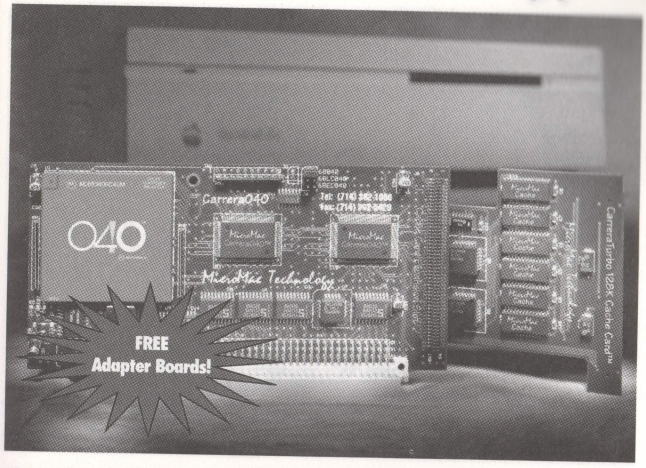
For the Mac II, IIci, IIsi, IIcx, IIx, IIvx, SE/30 & LCIII: The MicroMac DiiMO 030 Accelerator

Raw 50MHz Horse Power!!

The MicroMac DiiMO 030 accelerator offers exceptional speed, performance and value for your Macintosh computer. Once installed in your machine, it will give you 68040 speed and performance comparable to a Quadra 605 or Centris 650. The DiiMO 030 achieves its 68040 equivalent power and performance by employing a 64KB static RAM cache (which serves as a very high speed storage area for frequently used data) and Zero-wait state technology (which allows the CPU to perform operations without delays) to a fast 50MHz 68030 processor.

The DiiMO 030 accelerator is compatible with all standard software (such as System 7.5 and RAM Doubler) and hardware and is user-installable in minutes. The accelerator for the Macintosh IIci (IIvx, IIvi, Performa 600) and LCIII plugs directly into the Processor Direct Slot (PDS) on the logic board. For the Macintosh IIsi and SE/30, the DiiMO 030 installs with an adapter board that plugs directly into the expansion slot. The DiiMO 030 for the Macintosh II, IIcx and IIx installs with an adapter board that plugs into the CPU socket. The necessary adapter boards are included at no extra cost.

MicroMac Technology



For the IIci, IIsi, IIcx & IIx:
Carrera040 Accelerator & CarreraTurbo 128KB Cache Card

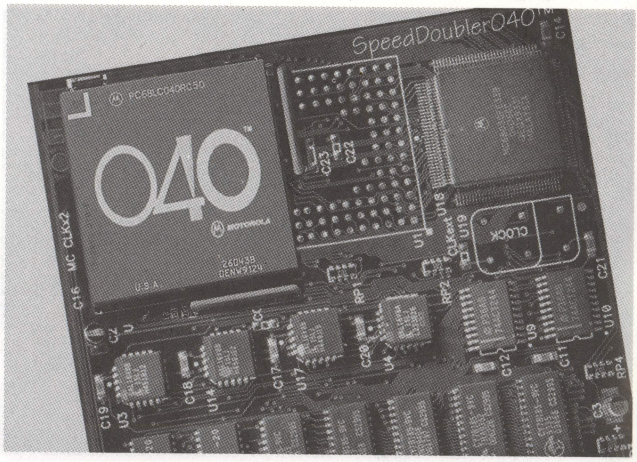
Quadra Speed and Power!!

Just plug in the 66MHz or 80MHz Carrera040 accelerator and instantly get blazing performance from your Macintosh IIci, IIsi, IIcx or IIx. Its the smartest, fastest and most economical way to get a hot new Macintosh without buying a new one. And, its hundred of dollars less than comparable accelerators. With the 80MHz Carrera040 accelerator you notice the benefits and power of a 68040 CPU right away: screen redraws up to 7.3 times faster in Illustrator, Freehand, PageMaker and QuarkXPress; blazing special effects 4.9 times faster in Photoshop; lightning fast recalculations up to 8 times faster in Microsoft Excel; and screen scrolls 5.2 times faster in Microsoft Word.

For added performance, purchase the CarreraTurbo 128KB Cache card. With the added benefits of cache, the performance of your Carrera040 accelerator increases by an additional 25%. The CarreraTurbo 128KB Cache card plugs directly onto the Carrera040 accelerator.

With the Carrera040 accelerator and CarreraTurbo 128KB Cache card, you will get the power you need today with the best upgrade value for your '030 Macintosh.

MicroMac SpeedDoubler040 Accelerator



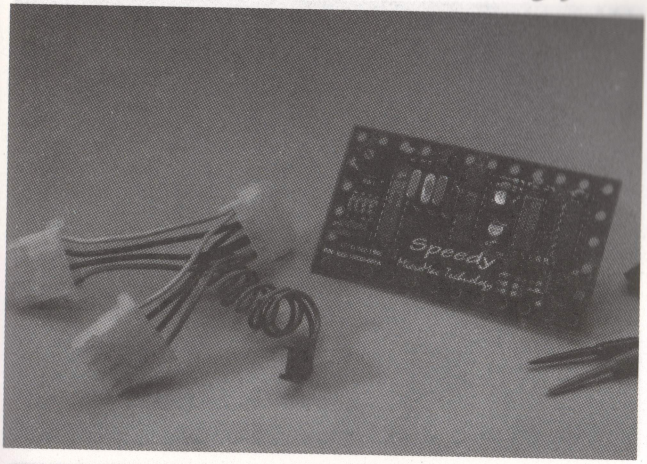
For the Quadra 700 & 900: The MicroMac SpeedDoubler040 Accelerator

Maximize Your Creative Time

The SpeedDoubler040 is the ultimate accelerator in speeding up your Quadra 700 or 900. The unsurpassed quality of the SpeedDoubler040 is ideal for such demanding tasks as extensive database management, word processing, multimedia and accessing the Internet/World Wide Web. With a 68040 processor running at 100MHz, 128KB cache and Zero-wait state technology, the SpeedDoubler040 is faster than a Power PC 6100/7100/8100 while running 68040 software in emulation mode. The FPU version of the SpeedDoubler040 boosts the performance of desktop publishing and 3D rendering programs that utilize an FPU. The performance of tasks as simple as recalculating a spreadsheet or as sophisticated as rendering a three dimensional object will increase up to 200%.

With its unique slot-free design the SpeedDoubler040 does not occupy any NuBus slots on your Quadra's logic board, thus allowing for added expandability. Simply unplug the 68040 processor from the CPU socket on the logic board of your Quadra 700 or 900 and insert the SpeedDoubler in its place.

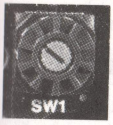
MicroMac Technology



For the IIsi, IIfx, Centris 610/650, Quadra & PowerPC: The MicroMac Speedy Accelerator

Almost 100 Speedy Frequencies

The MicroMac Speedy accelerator offers the best price/performance of any variable speed CPU clock accelerator on the market. The Speedy clock accelerator replaces the fixed frequency clock oscillator of your Macintosh or PowerPC logic board with a Variable Frequency Oscillator (VFO). The increased speed of your new CPU clock runs your Macintosh or PowerPC between 115% and 150% of your original Macintosh's speed, allowing you to perform many routine tasks much faster.



With its unique frequency thumb wheel dial, you can fine tune the Speedy to your specific hardware and software environment. This feature allows you to adjust your Macintosh's CPU between a wide range of frequencies unlike other clip on crystal oscillators on the market today that are set for only one frequency.

The Speedy accelerator comes with all the necessary connectors to fit the supported Macintoshs and best of all, no soldering is required!

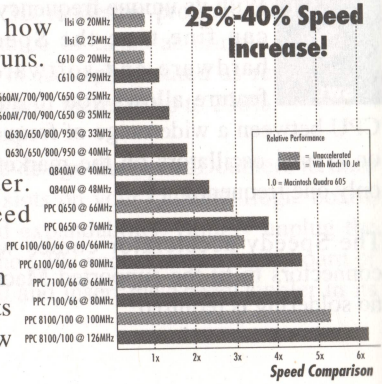
MicroMac Mach10 Jet Accelerator

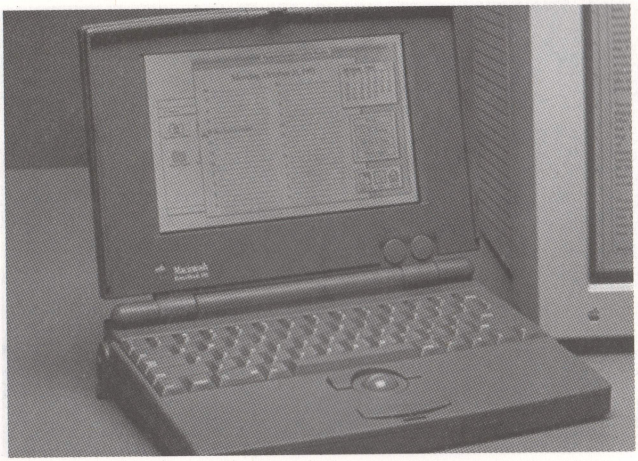
For the IIsi, Centris 610/650, Quadra and PowerPC: The Mach10 Jet Accelerator

1/2 Review in MacUser UK (3/31/95, Vol. 11 No. 7)

The Mach10 Jet is a simple "Plug-and-Play" accelerator for a wide variety of Macintosh computers that mounts on the clock chip inside your computer. It consists of a mounting clip (the Mach10 Jet itself) and an interchangeable clock chip. Also supplied is a fan and/or heatsink if your Macintosh requires extra cooling. The Mach10 Jet does not require any NuBus or PCI slots. Since it is a hardware solution that requires no external software, it is totally compatible with all Macintosh software.

You will be amazed how fast your Macintosh runs. The bootup sequence is quick, windows fly open and applications run faster. You will notice speed increases in all CPU intensive tasks, screen redraws and scrolls. Its just like owning a new Macintosh!





For the PowerBook 140, 160, 520, 540 and Duo 210: The MicroMac PowerBook Acceleration Upgrade

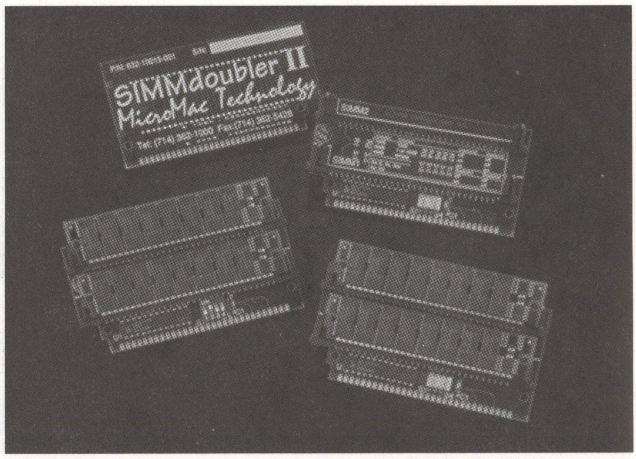
PowerBook Acceleration

With a MicroMac PowerBook acceleration upgrade you will be able to increase the speed of your existing PowerBook and add an FPU to increase the speed of math calculations by 400%. Many of today's applications, such as rendering programs, only work if you have a FPU installed in your machine. The PowerBook acceleration upgrade consists of CPU-clock acceleration, the addition of an FPU and/or CPU chip exchange. After the upgrade the "About this Macintosh" dialog box under the menu will actually show the new PowerBook model number.

Performance increase for PB140 to 160% (speed of PB170)
Performance increase for PB160 to 133% (speed of PB180)
Performance increase for PB520 to 133% (speed of PB540)
Performance increase for Duo210 to 133% (speed of D230)
FPU performance increase for PB540 to 800% (speed of PB540 with FPU)

These PowerBook acceleration upgrades require soldering. MicroMac's trained technical staff will perform the upgrade at our in-house facility. One day turn-around for your PowerBook is available.

MicroMac SIMMdoubler II



For the Mac II, IIci, IIsi, IIcx, IIx, IIvx (IIvi, Performa 600) & IIfx: The MicroMac SIMMdoubler II

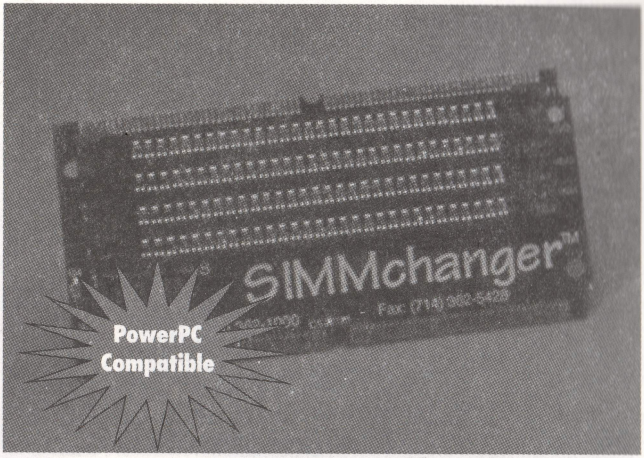
Double Your Memory

The MicroMac SIMMdoubler II consists of four boards. Each SIMMdoubler board plugs into one SIMM socket of your Macintosh logic board and provides two SIMM sockets. This effectively doubles your SIMM capacity and is the most cost effective solution to add physical memory to your existing DRAM.

SIMMdoubler II Benefits:

- **Increase your memory up to 64MB**
  Works with standard 1MB, 2MB, 4MB SIMMS.
- **Reuse your existing SIMMs**
  The SIMMdoubler II adds additional SIMM slots so you can use your existing memory.
- **Costly ROM exchange not required**
  Owners of the Macintosh II no longer need a ROM exchange to go beyond 8MB of memory.
- **Customize your memory configuration**
  The SIMMdoubler II allows you to build 2MB, 3MB, 4MB, 5MB and 8MB SIMMs by combining 1MB, 2MB and 4MB SIMMs in various configurations.
- Easy 10-minute installation.

MicroMac Technology



For the Mac LCIII, Centris 610/650, Quadra 605/610/650 & PowerPC 6100/7100 (without internal CD ROM): The MicroMac SIMMchanger

Re-use Your SIMMs

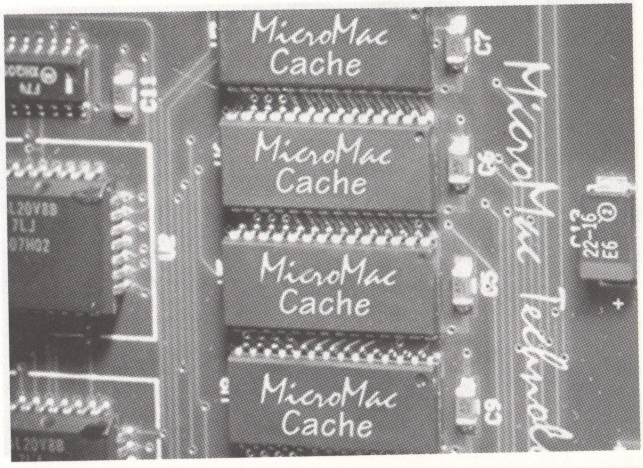
The MicroMac SIMMchanger converts your existing 8-bit 30-pin SIMMs into one 32-bit 72-pin SIMM for use in the new Macintosh Centris, Quadra and PowerPC models.

SIMMchanger Benefits:

- **Re-use your existing SIMMs**
  Save by converting SIMMs that you may have from your older Macintosh such as a Macintosh II series or Plus, SE or Classic.
- **Perfect upgrade for the Quadra or PowerPC**
  The SIMMchanger is compatible with a wide range of Macintosh computers, including the PowerPC 6100 and 7100 (without internal CD ROM).
- **Easy 10-minute installation**
  As easy as adding SIMMs. Just populate the SIMMchanger with four 30-pin SIMMs, set the configuration jumpers and plug the SIMMchanger into the 72-pin SIMM socket of the logic board of your Macintosh or PowerPC. Its that easy!

MicroMac Technology

MicroMac Cache Cards



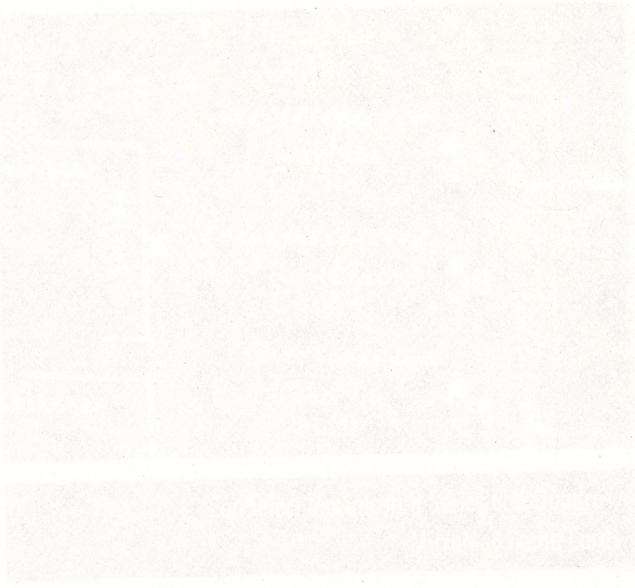
For Select Macintosh II Series and Quadras: MicroMac Cache Cards

High-Performance Cache

MicroMac Cache cards are economical for every type of CPU intensive processing: from home finances and business productivity applications to graphic programs and games. With a MicroMac Cache card you speed up many operations on your Macintosh, such as CPU throughput, accessing frequently used data, performing complex image filtering and effects and spell checking documents. Cache is used to store frequently used information and data so the next time you perform a task, the computer retrieves the information from the quick, high performance cache instead of the computer's RAM where information is processed at a slower rate.

The Slot-Free Cache cards install into the CPU socket on logic board of your Macintosh. You simply remove the processor, insert the Cache card into the CPU socket and replace the processor into the socket connector on the Cache card.

The PDS Cache cards install into the Processor Direct Slot (PDS) on the logic board of your Macintosh.



MicroMac Technology

27121 Aliso Creek Road, Suite 125
Aliso Viejo, CA, USA 92656-3364

Telephone:	(714) 362-1000
Fax:	(714) 362-5428
Sales:	(800) 600-6227
Technical Support:	(714) 362-4953

Internet Addresses

WWW Home Page:	http://www.micromac.com/
Sales:	sales@micromac.com
Technical Support:	support@micromac.com